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Hydroacoustic Herring Survey Results and Trawl Catches from Hecate Strait, November 14 - 24, 1987. *W. E. RICKER* Cruise WER87J

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HYDROACOUSTIC HERRING SURVEY RESULTS AND TRAWL CATCHES FROM HECATE STRAIT, NOVEMBER 14 - 24, 1987. W. E. RICKER CRUISE WER87J

by

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ABSTRACT

McCarter, P. B., R. Kieser, D. E. Hay, and D. C. Miller. 1988. Hydroacoustic herring survey results and trawl catches from Hecate Strait, November 14-24, 1987. W. E. RICKER cruise WER87J. Can. MS Rep. Fish. Aquat. Sci. 1997: 72 p.

Coastal waters within the 50-200 m bottom contour of Hecate Strait were surveyed to determine Pacific herring abundance estimates and distribution patterns. Total midwater biomass estimates for herring were 11,300 tonnes at Browning Entrance, 2,820 tonnes SW of Bonilla Island, 510 tonnes along Butterworth edge, 620 tonnes in mid-Hecate Strait, 920 tonnes off Lyell Island and 14,620 tonnes in Juan Perez Sound. Herring schools were difficult to integrate acoustically in inlets and narrow sounds because of bottom echo interference and high herring densities near the surface at night. Species composition of thirteen midwater trawl and nine bongo net catches, stomach contents and size and age distribution of herring were also examined. Seawater temperatures were collected at six X.B.T./trawl locations.

Key words: Pacific herring, Hecate Strait, hydroacoustic, abundance estimate, trawl, survey

RÉSUMÉ

McCarter, P. B., R. Kieser, D. E. Hay, and D. C. Miller. 1988. Hydroacoustic herring survey results and trawl catches from Hecate Strait, November 14-24, 1987. W. E. RICKER cruise WER87J. Can. MS Rep. Fish. Aquat. Sci. 1997: 72 p.

On a procédé à un recensement dans les eaux côtières dans les limites du contour de fond (50-200 m de profondeur) du détroit d'Hecate pour déterminer l'abondance des stocks de harengs du Pacifique et les modèles de distribution. La biomasse pélagique totale de harengs a été estimée à 11 300 tonnes à l'entrée Browning, à 2 820 tonnes au SO de l'île Bonilla, à 510 tonnes en bordure de Butterworth, à 620 tonnes au milieu du détroit d'Hecate, à 920 tonnes au large de l'île Lyelle et à 14 620 tonnes dans le détroit Juan Perez. Les bancs de harengs étaient difficiles à repérer au moyen d'un équipement acoustique dans les criques et les détroits étroits à cause de l'interférence de l'écho du fond et de la forte densité de la population de harengs près de la surface durant la nuit. On a également examiné la composition des espèces prises dans treize chaluts pélagiques et neuf filets bongo, le contenu de l'estomac des poissons capturés, ainsi que la répartition des spécimens par taille et âge. Les températures de l'eau de mer ont été relevées à 6 emplacements de chalut/X.B.T.

Mots-clés: Hareng du Pacifique, détroit d'Hecate, hydroacoustique, estimation de l'abondance, chalut, recensement

INTRODUCTION

The primary objective of this survey was to examine the feasibility of obtaining hydroacoustic estimates of Pacific herring (Clupea harengus pallasi). The second objective was to identify and confirm sites where herring concentrate to overwinter prior to moving into shallower water for spawning. Midwater trawl and bongo net tows were conducted to verify the identity of major hydroacoustic targets and assign species composition fractions where possible. Herring biomass estimates obtained from this survey should not necessarily be regarded as accurate but rather, they represent the best available hydroacoustic estimates in view of the dynamic behaviour of herring and the time and resources available. These herring estimates are compared with other stock estimates which are based on spawn surveys and analyses of catch and age structure (Haist et al. 1988).

Information from this survey also contributes to the Hecate Strait Project in which the overall objective is to map fish assemblages and develop an ecological basis for mixed-species assessment and management techniques. A schedule of the W.E. RICKER's activities is located in Appendix Table 1. This report describes vessel activities including hydroacoustic transects, midwater trawl tows, bongo net tows and X.B.T. stations. It also summarizes hydroacoustic fish density estimates, catch composition, biological samples and seawater temperatures.

METHODS

HYDROACOUSTIC AND FISHING EQUIPMENT

The hydroacoustic equipment on the W.E. RICKER was configured for echo integration. Its major components are a Biosonics model 101 echo sounder, model 121 echo integrator and model 111 thermal chart recorder. Data was recorded on a VAX 11/730 shipboard computer. An 8 by 13 degree, 38 kHz ceramic transducer was mounted in a torpedo shaped body which was towed behind the vessel to minimize interference. The body also contained a roll and pitch sensor that records the body's attitude on a chart recorder. The ship's hull-mounted 38 kHz transducer was used when surveying shallow, protected waters. Most parallel transects were 1.0 nm apart and based on Loran C lines tracked during a previous winter cruise (McCarter et al. 1987). Single transects were assumed to have a width of 1.0 nm for area computations. A fish target strength of -32 dB/kg was used to convert the measured backscattering strength to fish density estimates. Biomass estimates were obtained by expanding the surface density over the area of interest.

Target calibration was conducted using a 38.1 mm tungsten steel sphere suspended under the towed body's transducer by three nylon lines while the vessel was secured at the dock. Difficulties in stabilizing the sphere

precluded accurate results. The echo sounder and transducer were subsequently calibrated March 11, 1988 at the hydroacoustic barge of the University of Washington, Seattle and the calibration parameters derived were used for this analysis.

Fishing equipment on the W.E. RICKER included a Canadian Diamond 5 midwater trawl with 40 fathom sweeplines and 3 m^2 Suberkrub otter boards. Catches were brought aboard, sorted by species into tubs and total species weights estimated. Herring samples were placed in buckets and frozen. Species catch compositions were interpreted and applied to hydroacoustic biomass estimates after echograms were closely examined.

HERRING SAMPLES

Scales for age determinations were removed from 100 herring in each sample. Herring standard length measurements were recorded to the nearest millimeter, fish weights and gonad weights to the nearest gram and sex and maturity determined whenever possible. Herring stomachs were injected through the body cavity with 10 percent formalin and the herring frozen. Stomachs were later examined for contents using the same methods as in a previous summer Hecate Strait survey (McCarter et al. 1986).

PLANKTON TOWS

Nine oblique plankton tows were conducted using a 0.25 m^2 Bongo equipped with 350 µm and 500 µm black Nitex nets of modified SCOR design. General Oceanic flowmeters with low speed rotors were used to measure the volume of seawater filtered. Depth of tows varied from 56-155 m and bottom depths at stations were 90-220 m. Tows lasted 6-16 minutes at vessel speeds of 2 knots. Cable descent rates were 50 m/min and the ascent rates were 20 m/min. Recovered nets were washed with a high pressure hose and samples preserved in 10 percent buffered seawater formalin.

HYDROGRAPHIC STATIONS

Six expendable bathythermograph (X.B.T.) casts were completed at six different trawl locations.

RESULTS AND DISCUSSION

HYDROACOUSTIC SURVEYS

Calculated biomass estimates in tonnes are shown in condensed form for all transects and transect groupings or localities (Appendix Table 2). Three major overwintering herring concentrations were assessed. Browning Entrance transects 14-26 comprised an area of 406 km^2 with a biomass estimate of 11,300 tonnes (Fig. 1), SW Bonilla Island transects B1-B9 comprised an area of 176 km^2 with a biomass estimate of 2,820 tonnes (Fig. 2) and Juan Perez Sound transects J12, J13 and J16 comprised an area of 82 km^2 with a biomass estimate of 14,620 tonnes (Fig. 3). Areas adjacent to these three localities were also surveyed and some transects repeated. Table 1 contains a summary of all biomass estimates obtained.

Surface density maps were plotted from selected transects (Figures 4-14). The transects are shown as dotted lines, verticals to the transects indicate density on a logarithmic scale. A range from 0.001 Kg/m^2 to 0.1 kg/m^2 is used and the maximum height is indicated by a dot. These estimates include all species in the echo integration zone and are based on an acoustic fish target strength of -32.0 dB/kg. The echo integration zone includes the entire water column except for a distance of 5 m from the bottom and 5 m to the transducer. These depth strata were not integrated to avoid bottom echo integration and surface interference.

Herring biomass estimates were difficult to obtain during the first coverage of the Browning Entrance transects because many of the dense herring schools were close to the bottom during daylight hours and not within the echo integration zone. The herring biomass estimate of 7,520 t is conservative. The second coverage of the Browning Entrance transects was conducted primarily during dark hours when most herring were in the midwater and surface layers. An integrator to computer data transfer malfunction, however, prevented complete coverage. The second herring biomass estimate also had to be adjusted for interference cause by porpoise schools. These mammals were frequently seen around the vessel and produced characteristic patterns on the echogram. It is estimated that 500 t of the 11,800 t second estimate was attributable to porpoise noise.

Biomass estimates were also difficult to obtain in the inlets and narrow sounds that were surveyed because the irregular sea bottom caused bottom tracking difficulties and prevented distinct integration of fish schools. This problem has been documented before (McCarter et al. 1987) and should be considered when chosing survey tracklines. High herring densities near the surface were also not assessed because of similar bottom tracking problems and vessel avoidance. An estimate can sometimes be obtained at night, however, by setting the depth strata window where the major schools are stratified. This was done for the first and second coverage of Juan Perez Sound when herring were descending and ascending respectively. The first coverage estimate was considerably lower than the second because high herring densities near the surface were not integrated. The second coverage integrated herring schools while they were ascending in the water column,

prior to skimmering near the surface and consequently produced a relatively high estimate. The third coverage, during daylight hours, integrated very few of the schools as they were too close to the sea bottom. The echo integration technique seems to work best when herring form subsurface skimmers or broken schools at 30-100 m depth, clear from any bottom or surface interference.

BIOLOGICAL DATA

Four midwater trawl tows were completed in Browning Entrance on the Freeman's fishing ground (Fig. 1), two tows were completed on the Bonilla fishing ground (Fig. 2) and seven tows were completed in Juan Perez Sound (Fig. 3). Trawl catches were composed entirely of herring at the Bonilla and Freeman's ground. Juan Perez tows averaged 87 percent herring, 11 percent dogfish and 2 percent pollock. Trawl catches by tow are contained in Table 2. Herring samples were collected from most tows.

Age composition, mean length-at-age and mean weight-at-age of herring samples are presented in Table 3. The contents of 50 herring stomachs from each of tow numbers 2, 4-6 and 11-13 were examined microscopically. Most stomachs were less than half full. The amphipod, Parathemisto sp. was the dominant food item while the euphausiids, Thysanoessa spinifera and Euphausia pacifica were codominant.

Nine bongo tows collected a total of 30 fish larvae which were separated by family, counted and total length measured to the nearest 0.2 mm using an ocular micrometer. Larval identifications were based on descriptions and drawings in Garrison and Miller (1982). Mean lengths and numbers of fish larvae collected are summarized in Table 4 and locations of bongo tows are shown in Figures 1-3.

SEAWATER TEMPERATURES

Seawater temperatures determined by expendable bathythermograph averaged 9.5°C at the surface and 8.7°C at the bottom. Table 5 shows seawater temperatures at trawl locations.

COMPARISON OF HYDROACOUSTIC ESTIMATES WITH OTHER BIOMASS ESTIMATES

The predicted stock biomass from age-structured and escapement models respectively, were 15,000 t and 11,000 t in the Queen Charlotte Islands area (assuming average recruitment) by Haist et al, 1988. The hydroacoustic

biomass estimate in comparison was 14,620 t in Juan Perez Sound with an additional 920 t offshore Lyell Island.

The hydroacoustic biomass estimates in the Prince Rupert District were: (1) 11,300 t in Browning Entrance, (2) 2,820 t SW of Bonilla Island, (3) 510 t at Butterworth edge, and (4) 620 t in mid-Hecate Strait. The total biomass from these surveys was 15,250 t. This compares with a predicted stock biomass from age-structured and escapement models respectively, of 44,500 t and 31,800 t.

CONCLUSIONS

Overwintering Hecate Strait herring were concentrated in the same areas as previous winter surveys in 1984 (Kieser et al. 1987) and 1985 (McCarter et al. 1987). Biomass estimates were also close to those of previous surveys and other stock assessment methods. Significant differences in the total biomass estimate in the Prince Rupert District in 1987-88 were likely attributable to incomplete hydroacoustic coverage in the Browning Entrance area. In the Queen Charlotte Island area it appears that stock size may have increased since the 1985-86 season. Other stock assessment methods based on spawn surveys and analyses of catch and age structure (Haist et al. 1988) support this view. Hydroacoustic surveys using the integration technique have significant potential as a stock assessment tool, however, considerable effort must be expended to ensure complete coverage of overwintering herring schools. Also, target calibration difficulties have prevented in situ measurement of calibration parameters. This temporary short-coming may produce significant error in year-to-year comparisons of total biomass.

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Table 1. Summary of total biomass estimates (t) by locality obtained during W.E. RICKER cruise, November 14-24, 1987.

Location	Event Number	Transect Name	Survey Area (km^2)	Estimated Biomass (t)	Time (PDST)	Date (D/M/Y)
Butterworth edge	67-94	100-122	229	510	18:58-24:00 00:00-04:26	16.11.87 17.11.87
Browning Entr. (first coverage)	12-51	14-29	456	7,520	11:11-24:00 00:00-02:29	15.11.87 16.11.87
Browning Entr. (second coverage)	97-136	14-29	406	11,800	18:25-24:00 00:00-08:55	17.11.87 18.11.87
SW Bonilla (first coverage)	52-64	10-13	157	2,830	02:38-08:00	16.11.87
SW Bonilla (second coverage)	292-310	B1-B9	176	2,820	06:44-12:32	22.11.87
Mid-Hecate Strait	274-292	H1-H16	285	620	21:55-24:00 00:00-06:44	21.11.87 22.11.87
Lyell Island (inshore)	139-166	Q1-Q13	138	no est.	08:57-14:48	19.11.87
Lyell Island (offshore)	171-189	Q16-Q19	597	916	16:47-24:00 00:00-02:45	19.11.87 20.11.87
Juan Perez (first coverage)	191-214	J1-J9	101	5,190[a]	03:47-08:06	20.11.87
Juan Perez (second coverage)	219-227	J12-J16	82	16,800[a]	16:42-20:12	20.11.87
Juan Perez (third coverage)	263-269	J12-J16	85	4,620	13:29-16:15	21.11.87
Skincuttle	230-251	R1-R18	246	no est.	01:05-07:51	21.11.87
Total areas	all	all	2,968			

[a]Biomass estimate is based on a selected depth strata interval of 5-120 meters to avoid bottom interference. All other estimates are based on a 5-200 m maximum integration depth interval.

Table 2. Midwater trawl locations and species[1] compositions of catches made by the W.E. RICKER, November 14-24, 1987.

Tow number	1	2	3
Date (Day/Mo.)	16/11	16/11	16/11
Time (P.S.T.)	09:10	13:05	15:35
Duration (min)	30	40	10
Location	Bonilla Is.	Browning Entr.	Browning Entr.
Start			
Latitude (o')	53 32.43	53 48.6	53 48.5
Longitude (o')	130 48.11	130 49.9	130 48.5
Finish			
Latitude (o')	53 33.78	-	53 48.9
Longitude (o')	130 46.32	-	130 47.9
Bottom depth (m)			
Start	97	97	109
Finish	106	100	106
Net depth (m)			
Start	44	79	70
Finish	78	66	90
Speed (kts)	3.4	3.3	3.6
Warp length (m)	175	175	200
Spiny dogfish (adult)	-	-	-
Spiny dogfish (juven)	-	-	-
Pacific herring	240	280	200
Walleye pollock	-	-	-
Yellowtail rockfish	-	-	-
Total catch (kg)	240	280	200

[1]after Hart (1973)

Table 2 (cont'd)

Tow number	4	5	6
Date (Day/Mo.)	18/11	18/11	20/11
Time (P.S.T.)	09:31	11:30	08:51
Duration (min)	47	35	30
Location	Browning Entr.	Browning Entr.	Juan Perez
Start			
Latitude (o')	53 47.40	53 47.76	52 30.26
Longitude (o')	130 51.93	130 52.47	131 24.58
Finish			
Latitude (o')	53 45.93	53 49.40	52 31.25
Longitude (o')	130 50.03	130 51.10	131 24.58
Bottom depth (m)			
Start	102	102	179
Finish	111	83	249
Net depth (m)			
Start	54	73	50
Finish	92	80	70
Speed (kts)	2.4	3.1	3.0
Warp length (m)	200	175	150
Spiny dogfish (adult)	-	-	20
Spiny dogfish (juven)	-	-	-
Pacific herring	-	480	100
Walleye pollock	-	-	-
Yellowtail rockfish	-	-	-
Total catch (kg)	-	480	120

[1]after Hart (1973)

Table 2 (cont'd)

Tow number	7	8	9
Date (Day/Mo.)	20/11	20/11	20/11
Time (P.S.T.)	10:00	12:43	13:30
Duration (min)	48	8	50
Location	Juan Perez	Juan Perez	Juan Perez
Start			
Latitude (o')	52 31.48	52 31.50	52 31.60
Longitude (o')	131 25.24	131 25.50	131 25.50
Finish			
Latitude (o')	52 30.07	52 31.30	52 29.90
Longitude (o')	131 22.30	131 24.90	131 22.20
Bottom depth (m)			
Start	254	258	218
Finish	171	181	77
Net depth (m)			
Start	50	-	80
Finish	70	-	63
Speed (kts)	2.9	3.5	3.2
Warp length (m)	150	150	250
Spiny dogfish (adult)	-	-	60
Spiny dogfish (juven)	640	-	-
Pacific herring	20	-	15
Walleye pollock	1	-	-
Yellowtail rockfish	1	-	10
Total catch (kg)	662	(tow aborted)	85

[1]after Hart (1973)

Table 2 (cont'd)

Tow number	10	11	12
Date (Day/Mo.)	20/11	20/11	21/11
Time (P.S.T.)	22:32	22:56	19:04
Duration (min)	30	76	17
Location	Juan Perez	Juan Perez	Juan Perez
Start			
Latitude (o')	52 32.46	52 32.17	52 30.30
Longitude (o')	131 28.11	131 25.86	131 23.50
Finish			
Latitude (o')	-	52 29.70	52 29.58
Longitude (o')	-	131 21.20	131 22.53
Bottom depth (m)			
Start	227	192	60
Finish	-	-	80
Net depth (m)			
Start	-	50	50
Finish	-	70	70
Speed (kts)	-	3.2	3.2
Warp length (m)	-	150	150
Spiny dogfish (adult)	-	60	10
Spiny dogfish (juven)	-	-	-
Pacific herring	40	120	6000
Walleye pollock	-	160	10
Yellowtail rockfish	-	-	-
Total catch (kg)	40	340	6020

[1]after Hart (1973)

Table 2 (cont'd)

Tow number	13
Date (Day/Mo.)	22/11
Time (P.S.T.)	13:19
Duration (min)	20
Location	Bonilla Is.
Start	
Latitude (o')	53 31.80
Longitude (o')	130 47.70
Finish	
Latitude (o')	53 31.00
Longitude (o')	130 48.10
Bottom depth (m)	
Start	103
Finish	102
Net depth (m)	
Start	85
Finish	85
Speed (kts)	2.4
Warp length (m)	150
Spiny dogfish (adult)	-
Spiny dogfish (juven)	-
Pacific herring	60
Walleye pollock	-
Yellowtail rockfish	-
Total catch (kg)	60

[1]after Hart (1973)

Table 3. Percent age composition (PC), mean length (mm)-at-age (ML) and mean weight (g)-at-age (MW) of herring sampled from W.E. RICKER midwater trawl tows, November 14 - 24, 1987.

Tow no.		Age									Number aged
		2	3	4	5	6	7	8	9	10+	
1	PC	0.0	22.5	35.0	11.3	11.3	7.5	6.3	5.0	1.3	80
	ML	0.0	178.7	191.5	208.2	207.0	215.8	217.4	236.5	220.0	
	MW	0.0	77.1	96.7	123.9	122.9	150.7	126.2	185.0	124.0	
2	PC	0.0	11.3	32.5	12.5	13.8	16.3	3.8	8.8	1.3	80
	ML	0.0	173.3	189.7	205.0	216.1	213.5	209.3	222.3	237.0	
	MW	0.0	71.8	94.0	114.5	132.1	131.5	129.3	138.6	166.0	
4	PC	1.3	10.5	53.9	7.9	6.6	9.2	3.9	3.9	2.6	76
	ML	178.0	172.8	190.5	198.5	207.4	215.4	217.0	244.3	245.5	
	MW	70.0	72.1	93.2	111.2	125.6	130.7	125.7	185.3	194.0	
5	PC	0.0	11.1	48.6	16.7	5.6	11.1	4.2	2.8	0.0	72
	ML	0.0	171.5	189.7	199.5	213.0	214.1	229.0	209.0	0.0	
	MW	0.0	69.8	96.0	109.7	132.8	146.3	176.7	128.5	0.0	
6	PC	0.0	67.5	19.3	0.0	3.6	6.0	0.0	3.6	0.0	83
	ML	0.0	185.8	205.2	0.0	223.3	229.8	0.0	230.7	0.0	
	MW	0.0	92.1	124.9	0.0	146.7	168.6	0.0	179.3	0.0	
7	PC	0.0	78.8	3.0	6.1	6.1	6.1	0.0	0.0	0.0	33
	ML	0.0	180.7	192.0	210.5	229.0	223.5	0.0	0.0	0.0	
	MW	0.0	83.5	99.0	135.5	178.5	149.5	0.0	0.0	0.0	
9	PC	3.8	67.3	5.8	3.8	7.7	9.6	1.9	0.0	0.0	52
	ML	163.0	177.2	208.0	222.5	216.8	223.2	237.0	0.0	0.0	
	MW	58.5	79.3	123.7	143.0	142.8	150.0	217.0	0.0	0.0	
11	PC	2.6	44.9	14.1	3.8	17.9	9.0	2.6	2.6	2.6	78
	ML	164.0	179.6	198.6	213.3	219.8	227.6	229.5	240.0	232.0	
	MW	64.5	83.0	117.5	145.0	156.4	176.9	172.0	222.0	207.0	
12	PC	0.0	88.8	5.6	0.0	0.0	3.4	1.1	0.0	0.0	88
	ML	0.0	183.1	205.4	0.0	0.0	228.0	227.0	0.0	0.0	
	MW	0.0	87.8	123.2	0.0	0.0	183.7	180.0	0.0	0.0	
13	PC	0.0	12.7	38.0	11.4	17.7	15.2	3.8	0.0	1.3	79
	ML	0.0	179.2	192.1	201.3	215.7	215.6	220.3	0.0	228.0	
	MW	0.0	80.5	97.7	115.7	136.1	136.0	162.0	0.0	163.0	

Table 4. Larval fish catches and mean larval lengths (mm) from bongo net samples collected during W.E. RICKER cruise, November 14-24, 1987.

Bongo station	Location (o' N. lat x W. long)	Maximum Net Depth (m)	Date (D/M/Y)	Time (PST)	Flowmeter revolutions		Larval Count and mean length (mm) by family[1]					
					500µm	350µm	UN	GA	HE	CO	PL	TOT
1	Browning Entr. 53 47.4 x 130 51.1	71	18.11.87	1255	7301	7557	-	-	4 8.8	-	-	4
2	Browning Entr. 53 41.7 x 130 45.1	85	18.11.87	1350	9423	9790	-	-	-	-	-	0
3	N. Bonilla Is. 53 34.7 x 130 46.1	64	18.11.87	1445	9265	9355	-	-	-	-	-	0
4	Selwyn Inlet	106	19.11.87	1140	18312	18585	1 2.9	4 8.6	-	-	-	5
5	Logan Inlet	100	19.11.87	1300	16157	16490	-	-	-	1 9.1	4 11.8	5
6	Juan Perez 52 30.9 x 131 26.4	57	19.11.87	1510	8580	8636	3 3.5	3 8.4	-	-	4 5.7	10
7	Juan Perez 52 30.9 x 131 26.4	156	19.11.87	1535	24154	24399	-	-	-	1 5.6	-	1
8	Juan Perez 52 32.4 x 131 14.2	92	21.11.87	2130	15013	13863	-	1 8.3	-	-	4 11.0	5
9	W. Bonilla Is. 53 30.9 x 130 47.8	71	22.11.87	1400	9370	9750	-	-	-	-	-	0
Total							4	8	4	2	12	30
Percent							13	27	13	7	40	100

[1] UN - unclassified
GA - Gadidae (codfishes)
HE - Hexagrammidae (greenlings)
CO - Cottidae (sculpins)
PL - Pleuronectidae (flatfishes)
TOT - total larval count

Table 5. Seawater temperatures (°C) at trawl locations and significant depths collected by expendable bathythermograph (X.B.T.) during W.E RICKER cruise, November 14-24, 1987.

Trawl tow	#2		#3		#4		#6		#7		#13	
N. Lat (o')	53 49		53 49		53 47		52 30		52 31		53 32	
W. Long (o')	130 50		130 49		130 52		131 25		131 25		130 48	
Date	Nov. 16, 1987		Nov. 16, 1987		Nov. 18, 1987		Nov. 20, 1987		Nov. 20, 1987		Nov. 22, 1987	
Time (PST)	13:05		15:35		09:31		08:51		10:00		13:19	
Significant Point	Depth (m)	Temperature (°C)	Depth (m)	Temperature (°C)	Depth (m)	Temperature (°C)	Depth (m)	Temperature (°C)	Depth (m)	Temperature (°C)	Depth (m)	Temperature (°C)
1	2	3.9	2	8.9	2	9.7	2	9.5	2	9.5	2	9.6
2	5	9.8	4	9.8	65	9.9	40	9.7	23	9.9	86	10.1
3	36	10.1	8	10.2	79	9.0	65	9.3	45	9.2	102	9.3
4	47	10.0	44	10.4	110	8.3	211	9.4	126	8.0	120	9.3
5	52	9.6	62	10.1	-	-	-	-	255	7.6	-	-
6	83	9.2	87	8.7	-	-	-	-	-	-	-	-
7	-	-	107	8.5	-	-	-	-	-	-	-	-

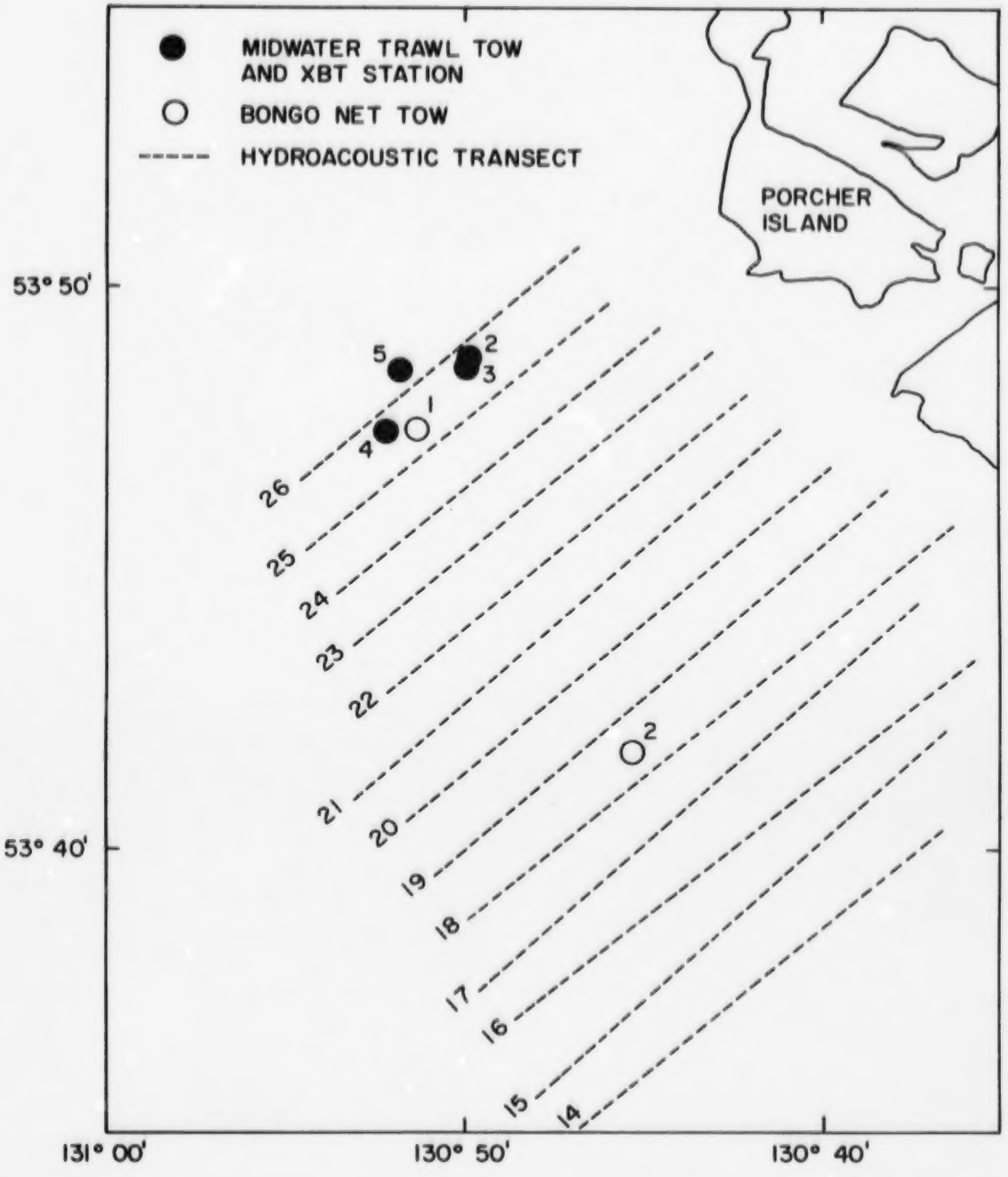

Fig. 1. Hydroacoustic transects, midwater trawl and bongo tow locations in Browning Entrance during W. E. RICKER cruise, November 14-24, 1987.

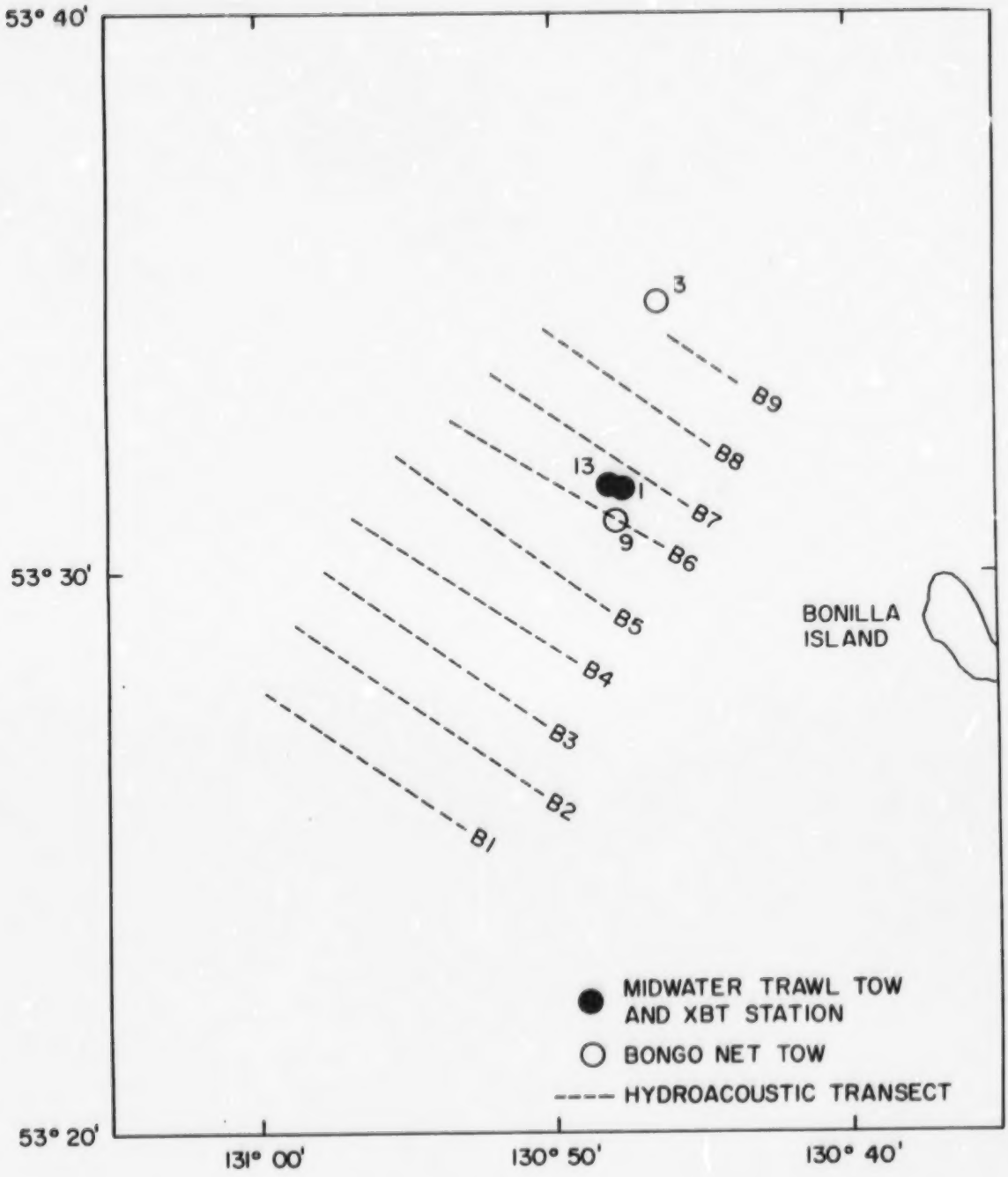

Fig. 2. Hydroacoustic transects, midwater trawl and bongo tow locations off SW Bonilla Island during W. E. RICKER cruise, November 14-24, 1987.

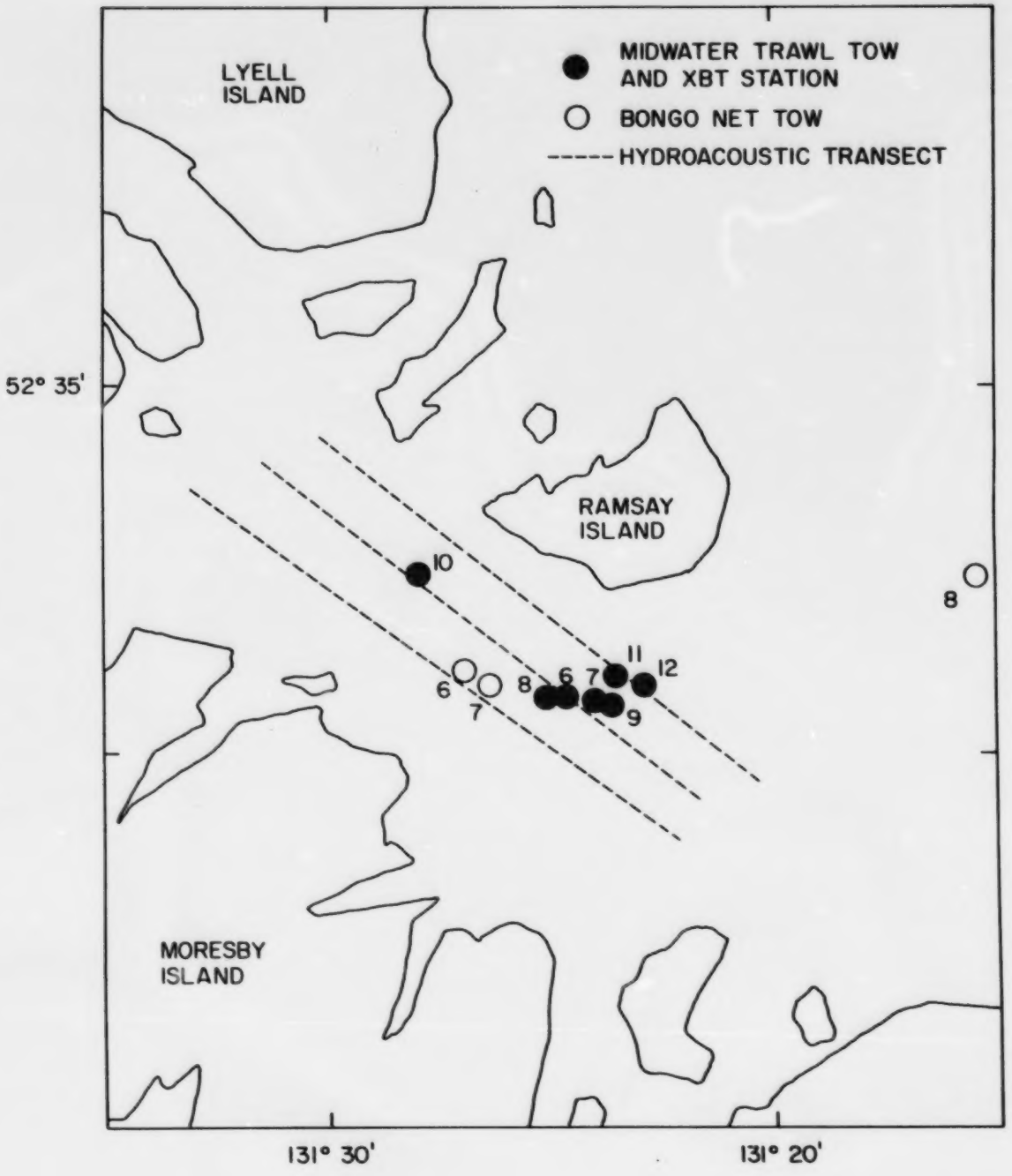

Fig. 3. Hydroacoustic transects, midwater trawl and bongo tow locations in Juan Perez Sound during W. E. RICKER cruise, November 14-24, 1987.

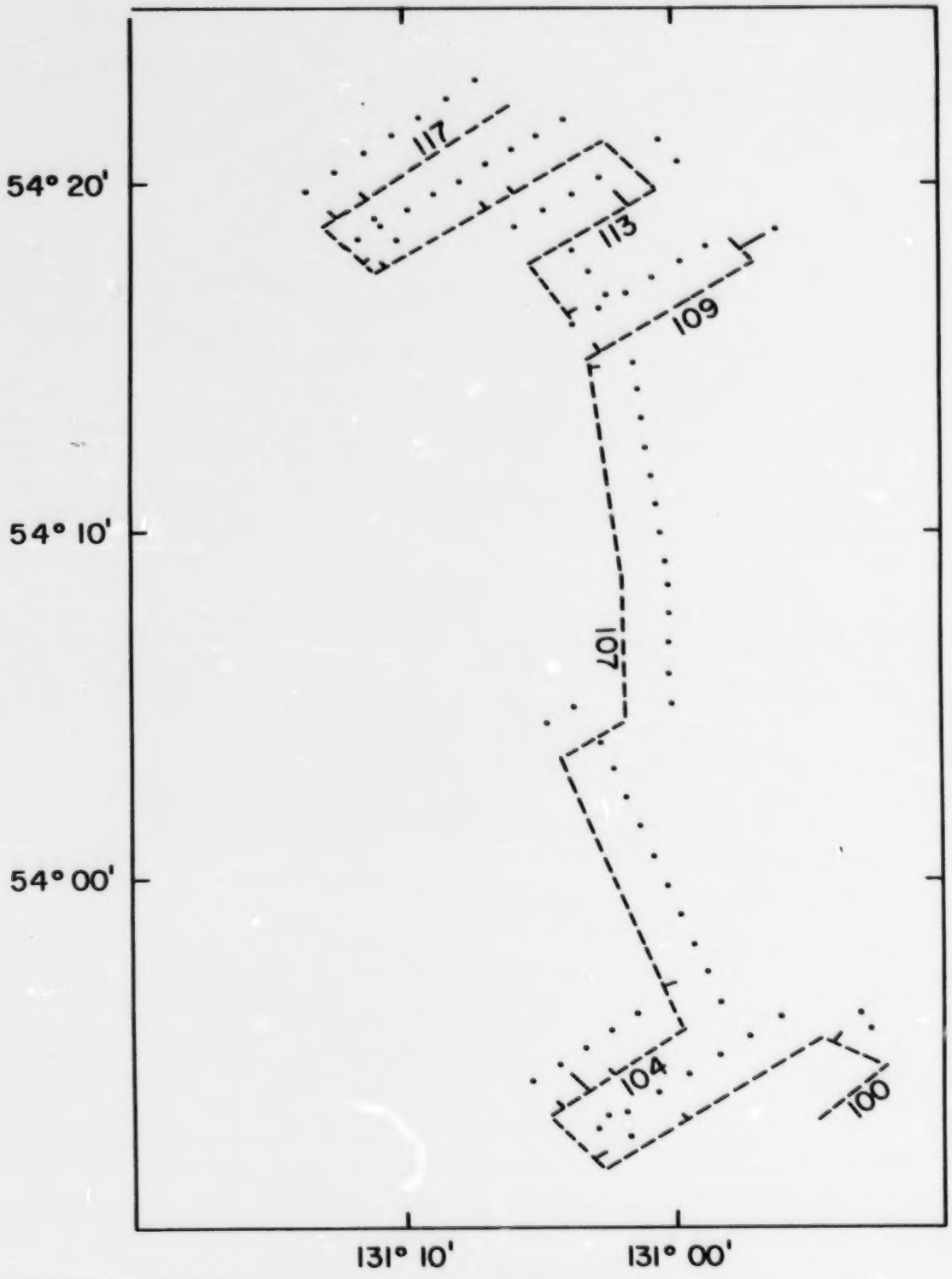

Fig. 4. Biomass density map of Butterworth edge. Total biomass estimated at 510 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

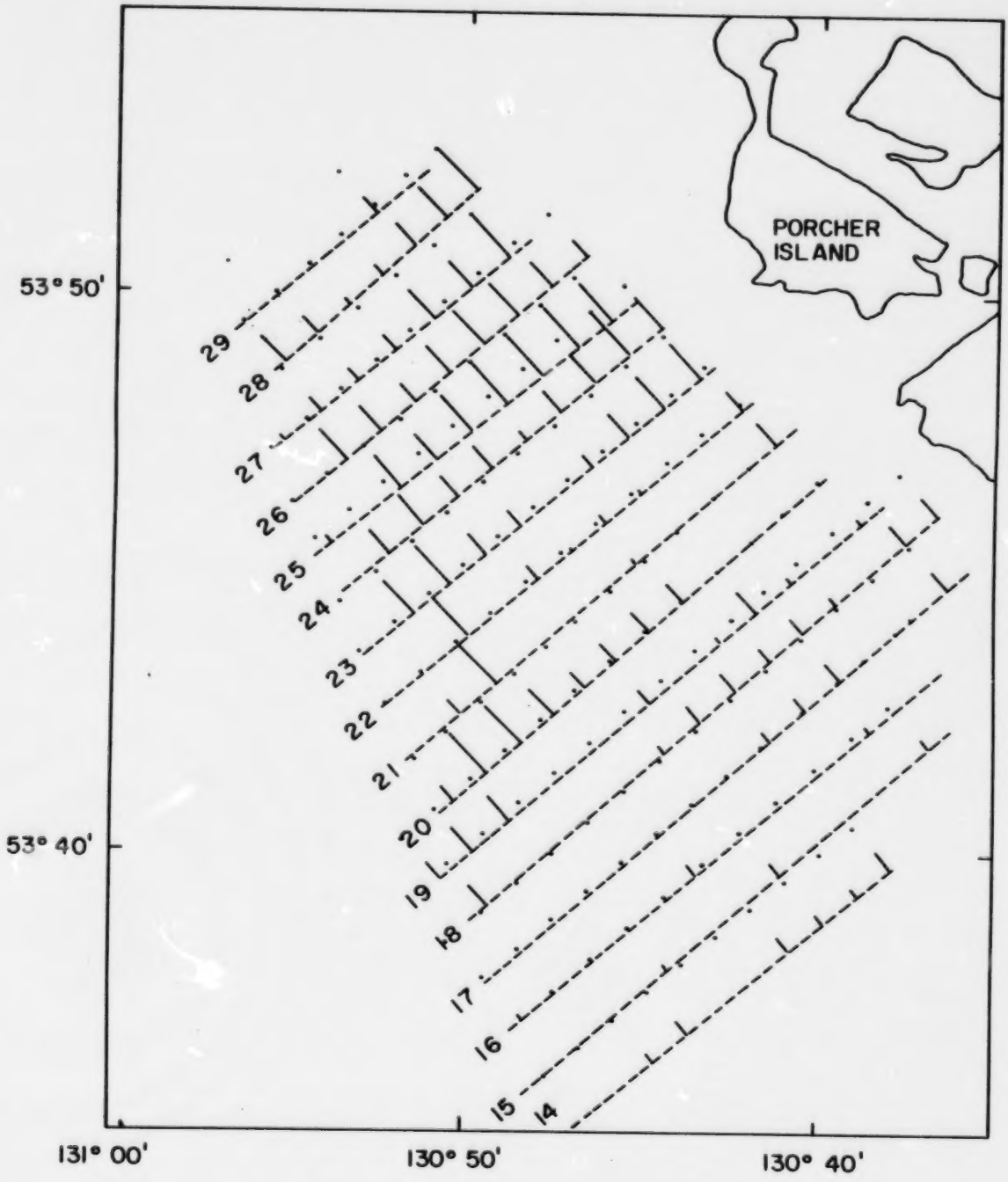

Fig. 5. Biomass density map of Browning Entrance (first coverage). Total biomass estimated at 7,520 tonnes. Density bars use a logarithic scale of .001 kg/m^2 to .100 kg/m^2.

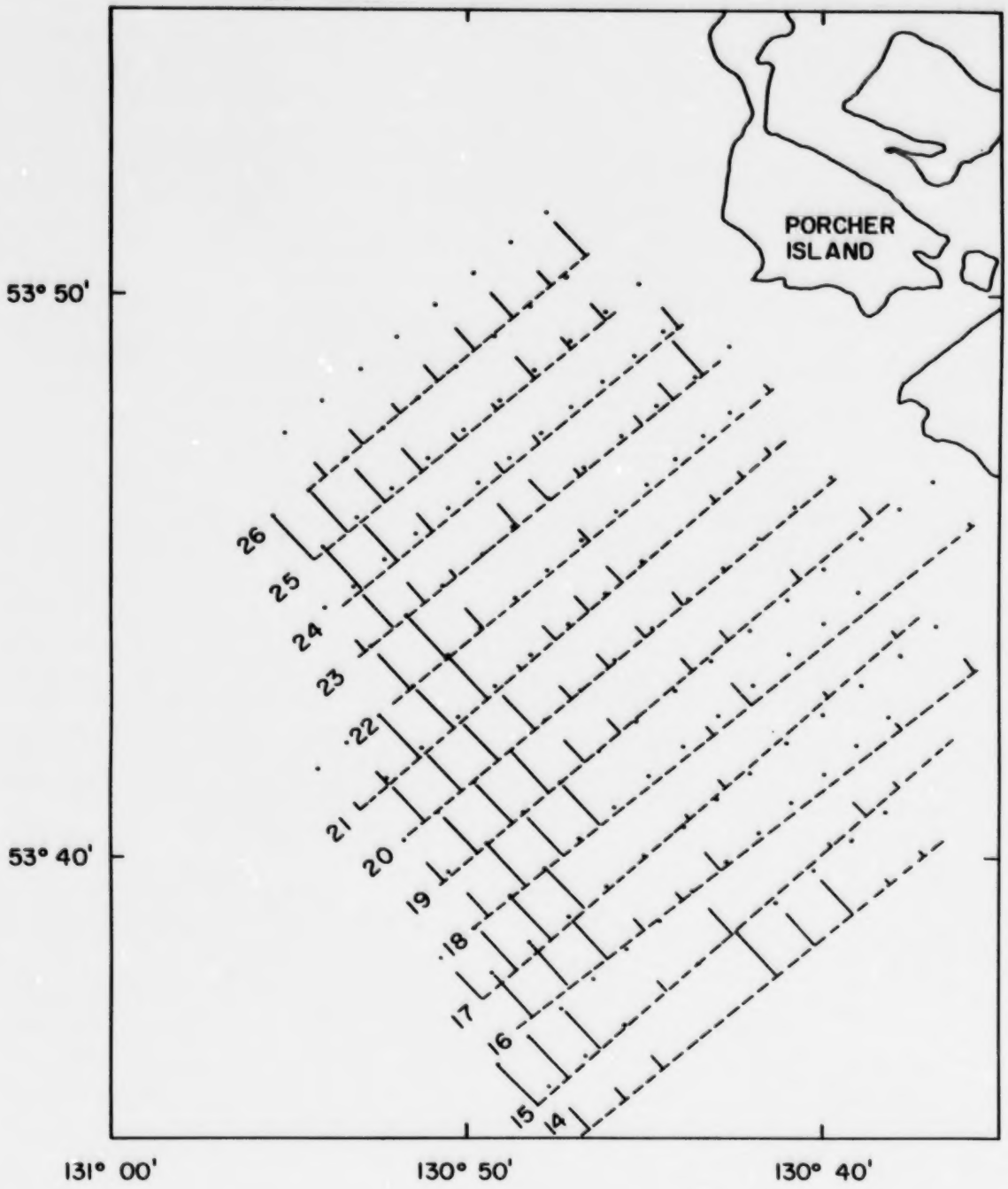

Fig. 6. Biomass density map of Browning Entrance (second coverage). Total biomass estimated at 11,800 tonnes. Density bars use a logarithic scale of .001 kg/m^2 to .100 kg/m^2.

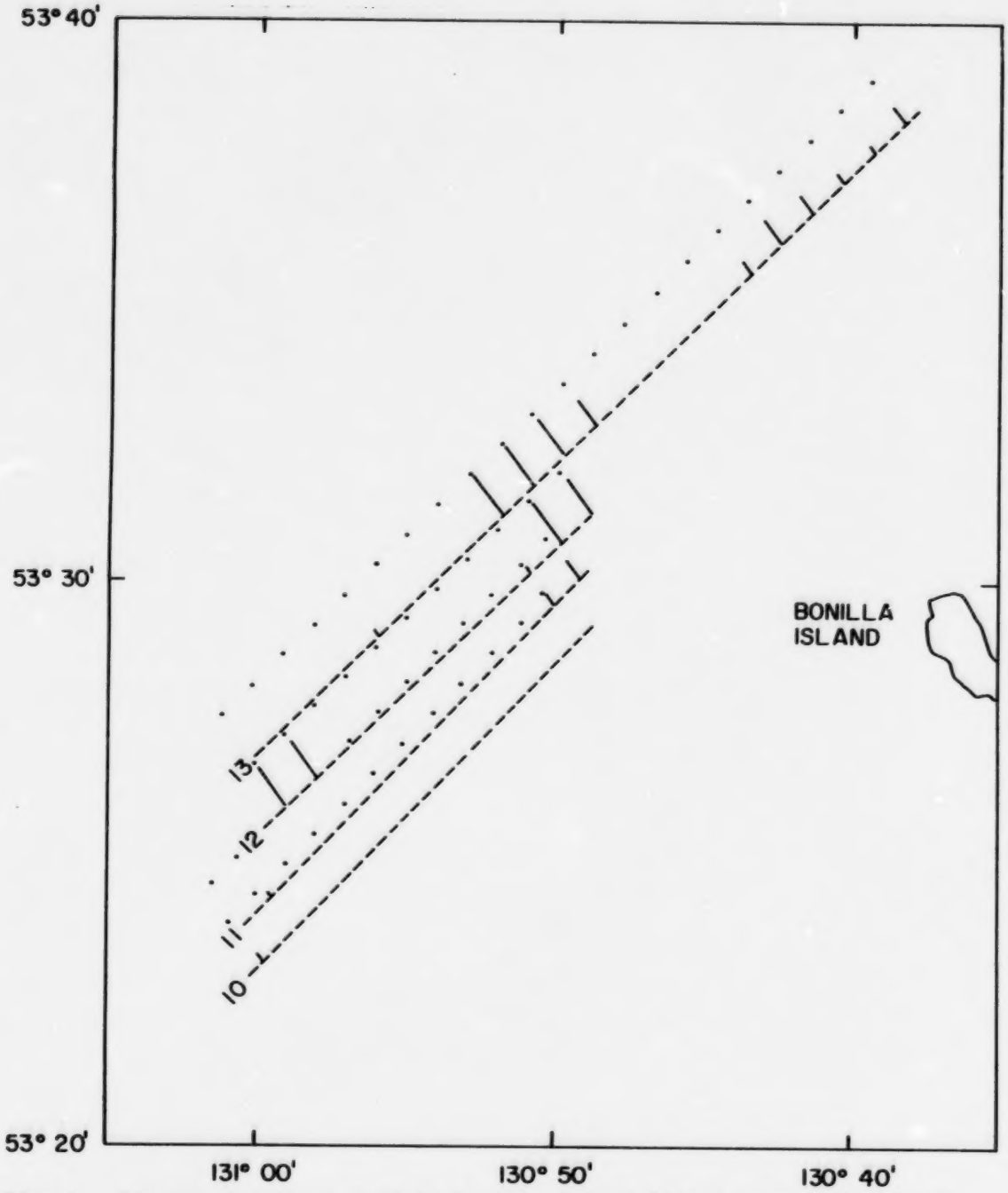

Fig. 7. Biomass density map of SW Bonilla Island (first coverage). Total biomass estimated at 2,830 tonnes. Density bars use a logarithic scale of .001 kg/m^2 to .100 kg/m^2.

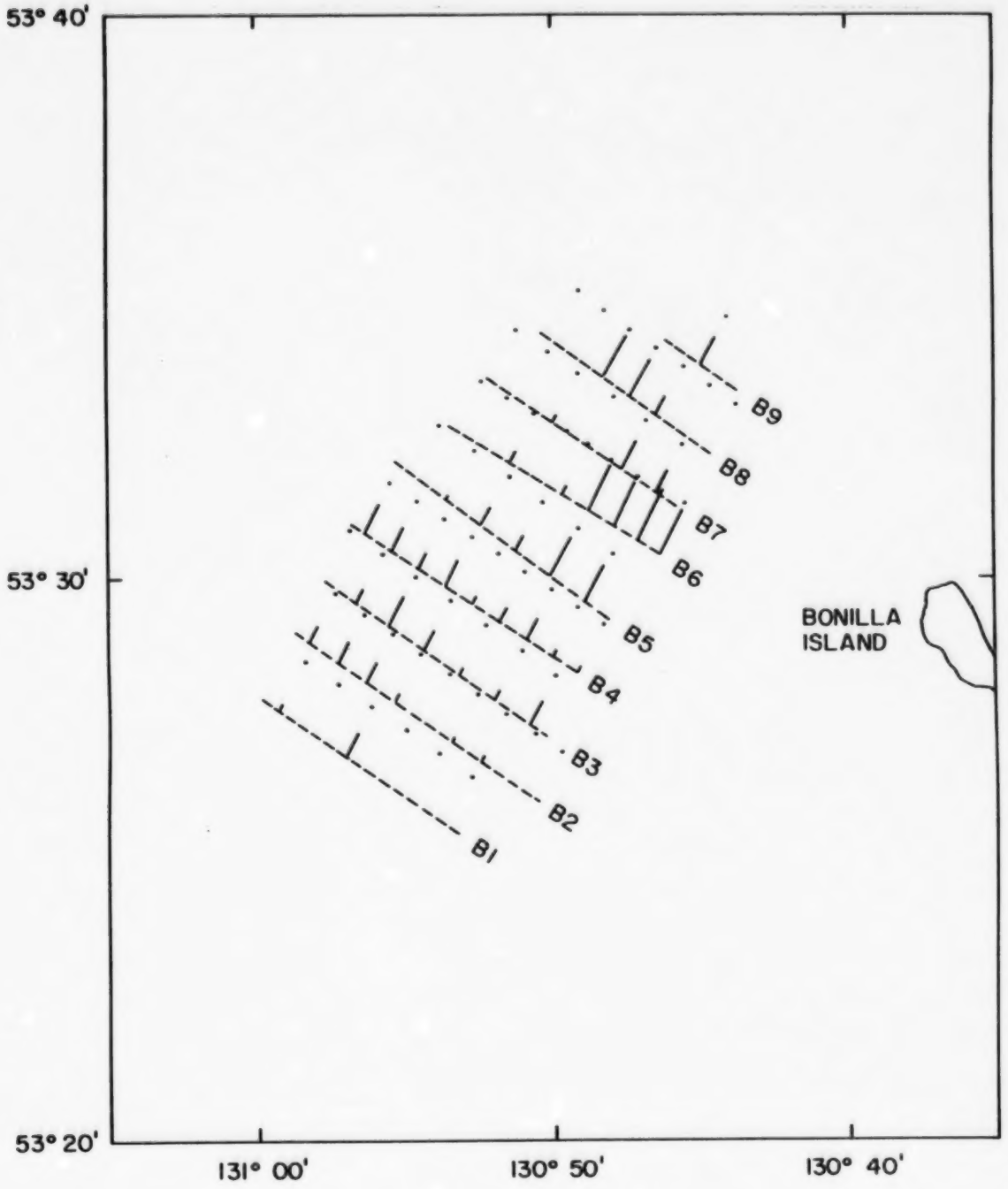

Fig. 8. Biomass density map of SW Bonilla Island (second coverage). Total biomass estimated at 2,820 tonnes. Density bars use a logarithic scale of .001 kg/m^2 to .100 kg/m^2.

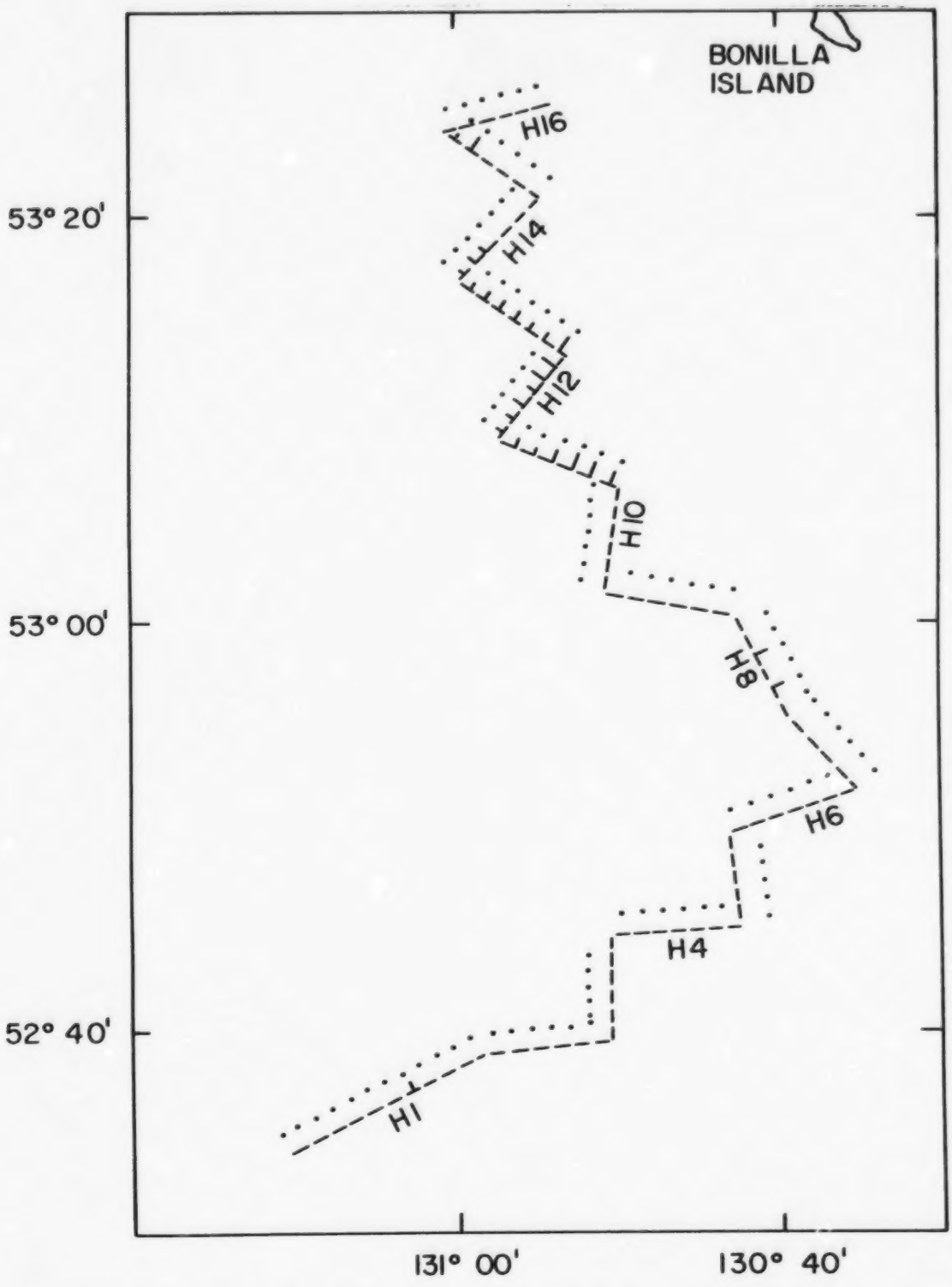

Fig. 9. Biomass density map of mid-Hecate Strait. Total biomass estimated at 620 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

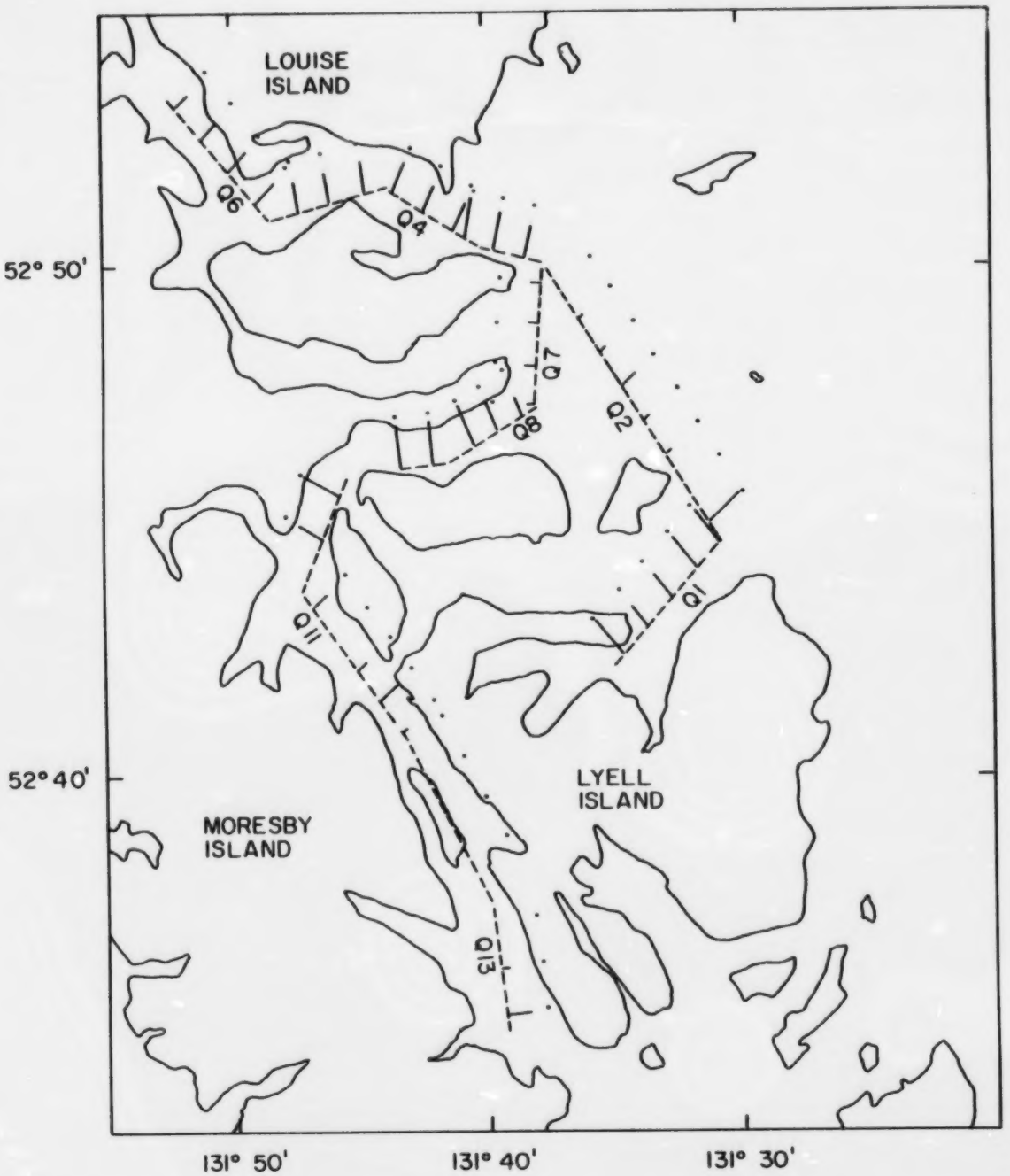

Fig. 10. Biomass density map of Lyell Island inshore. Total biomass estimated at 2,830 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

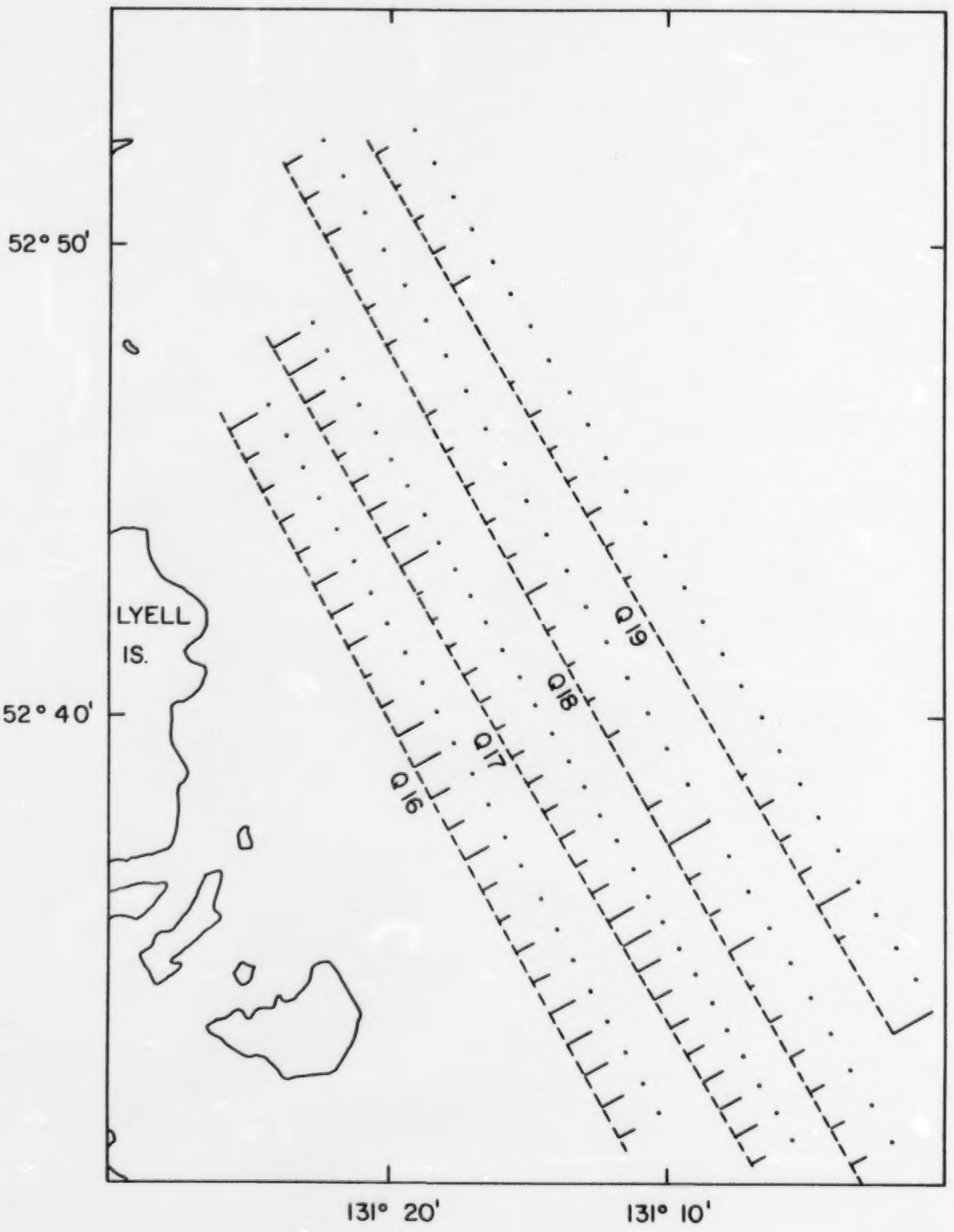

Fig. 11. Biomass density map of Lyell Island offshore. Total biomass estimated at 916 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

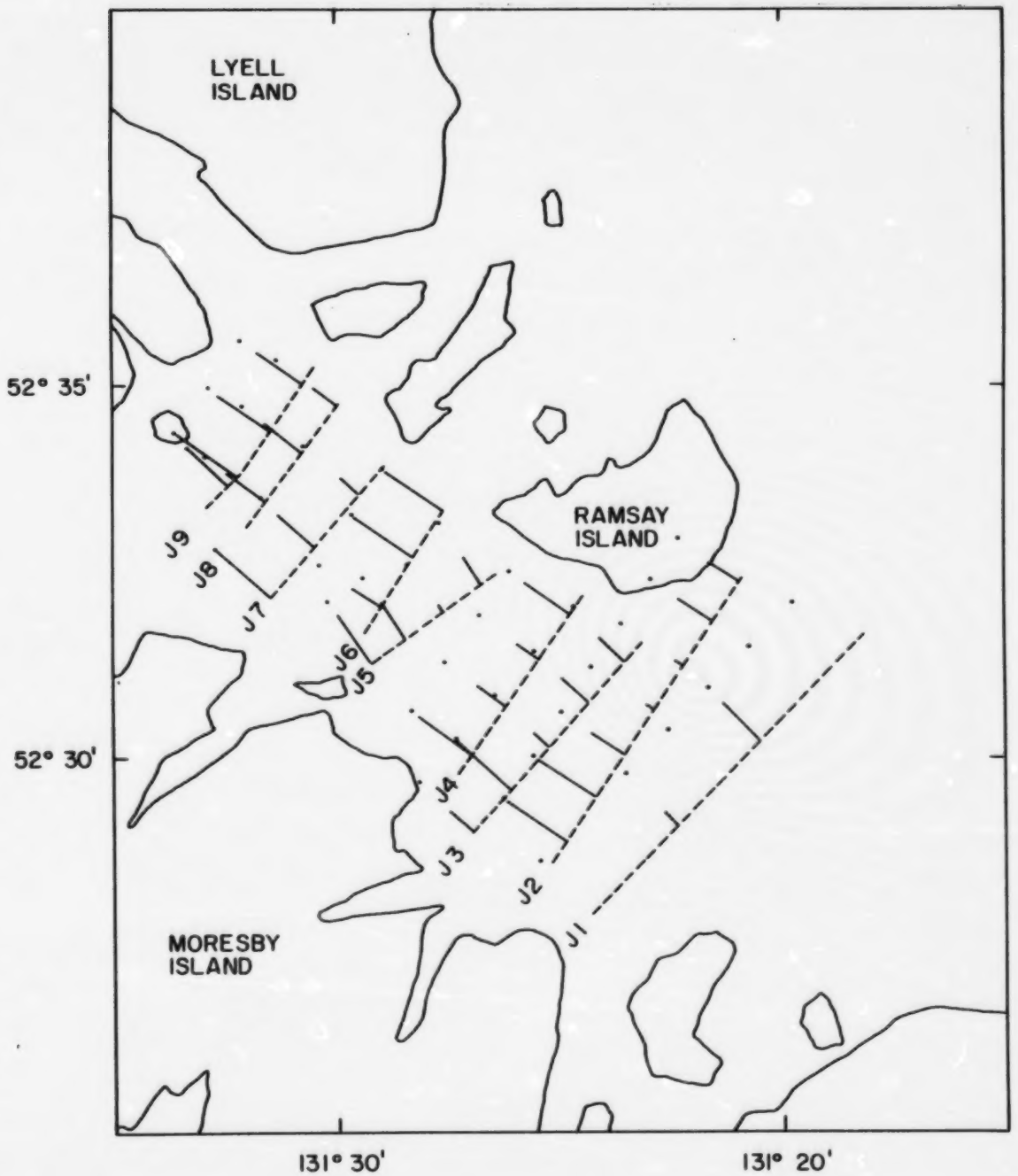

Fig. 12. Biomass density map of Juan Perez Sound (first coverage). Total biomass estimated at 5,190 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

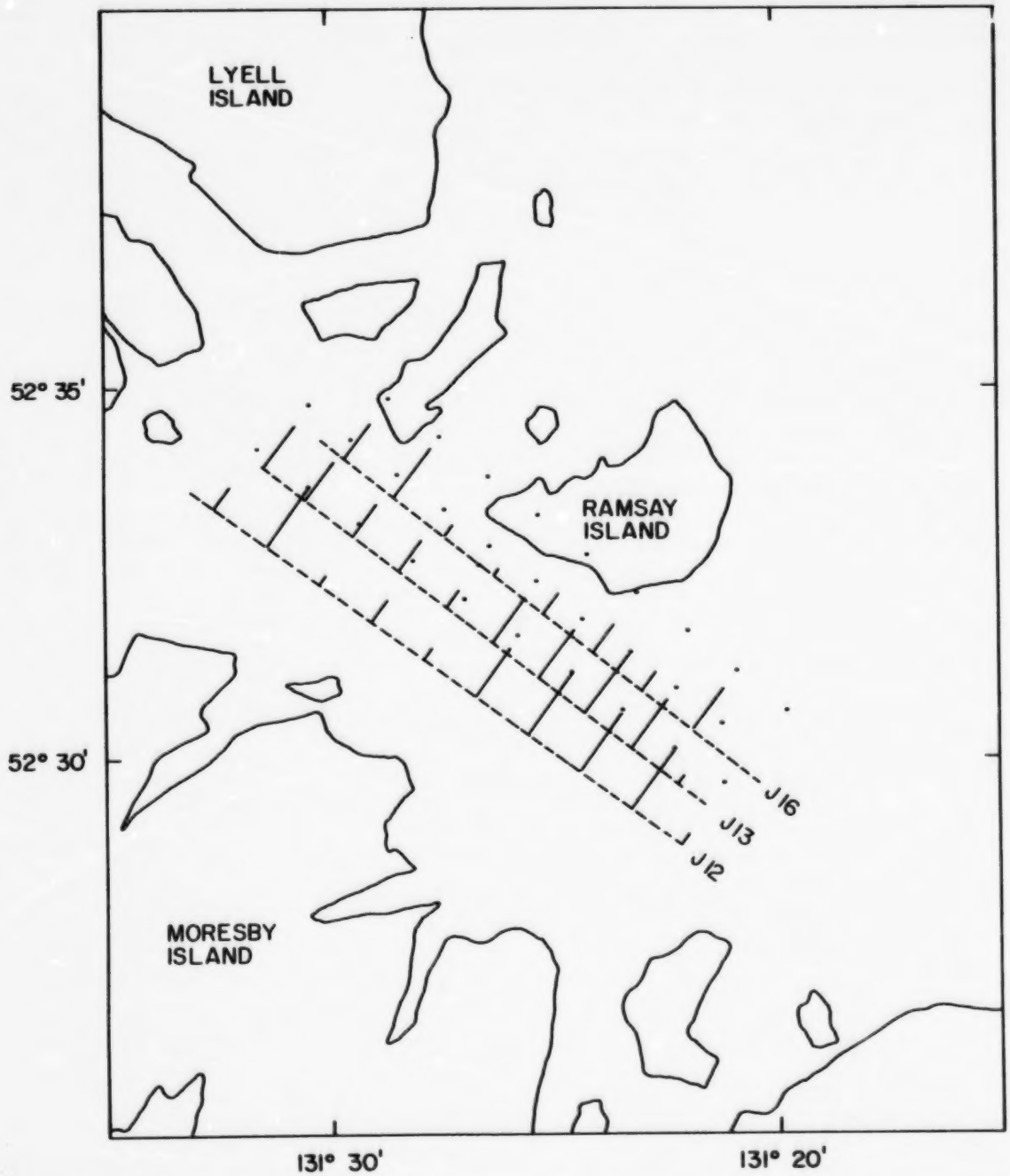

Fig. 13. Biomass density map of Juan Perez Sound (second coverage). Total biomass estimated at 16,800 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

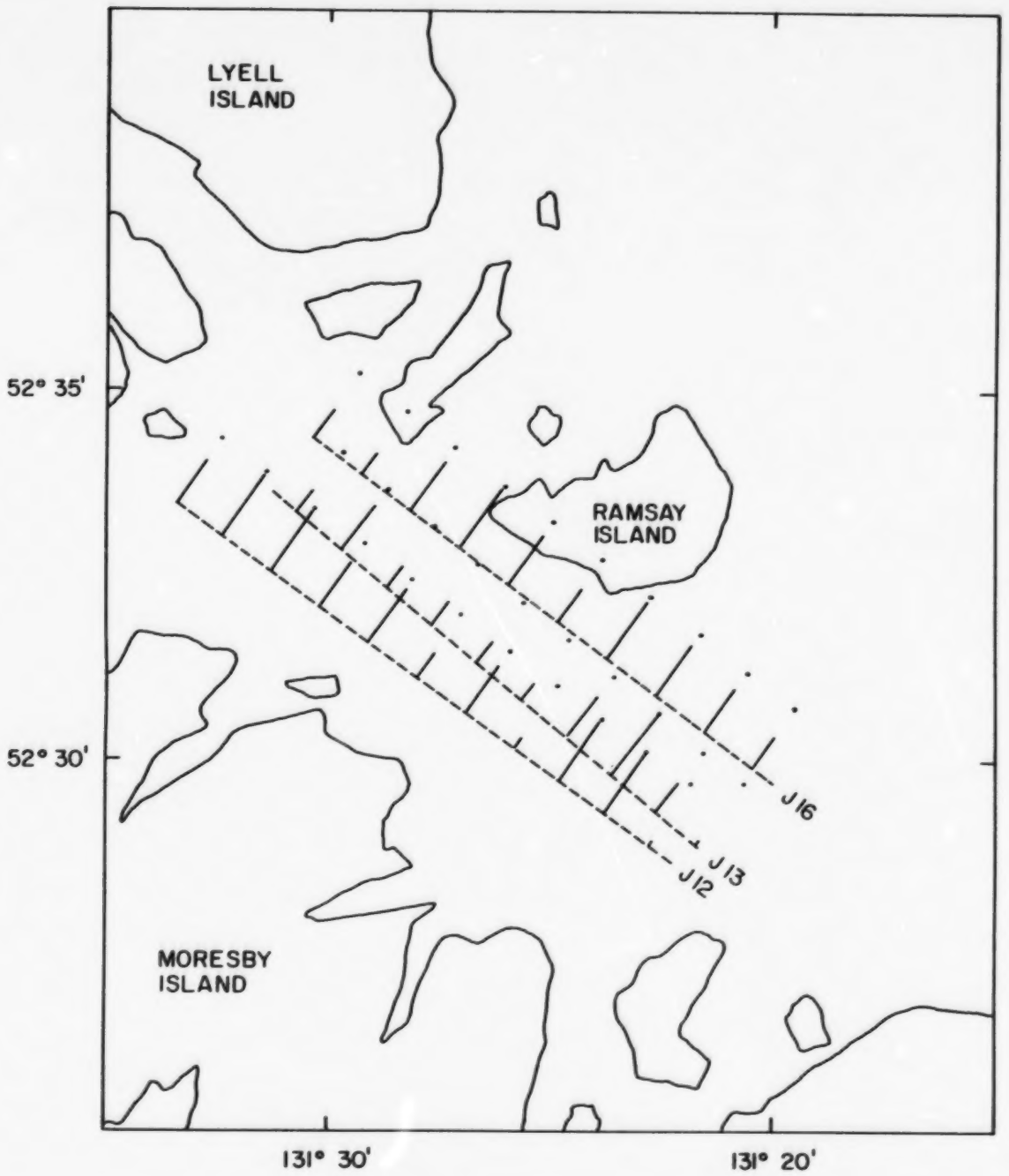

Fig. 14. Biomass density map of Juan Perez Sound (third coverage). Total biomass estimated at 4,620 tonnes. Density bars use a logarithmic scale of .001 kg/m^2 to .100 kg/m^2.

Appendix Table 1. Cruise schedule of the W.E. RICKER, November 14-24, 1987.

Date	Time	Activity
14 Nov	12:00	Scientific party, D. Hay, R. Kieser, B. McCarter and D. Miller board W.E. RICKER at Ocean Dock, Prince Rupert
14	12:30	Start calibration of towed body transducer while secured at dock
15	04:46	Depart Ocean Dock, Prince Rupert
	11:11	Transects 29-10 (Browning Entrance-first coverage)
16	09:10	Midwater trawl tow #1 (SW Bonilla Island)
	13:05	Midwater trawl tow #2 (Browning Entrance)
	15:35	Midwater trawl tow #3 (Browning Entrance
	18:58	Transects 100-122 (Butterworth Edge)
17	04:26	Sounding terminated due to SE winds of 50 kts.
	16:42	Transects 29-14 (Browning Entrance-second coverage)
18	09:31	Midwater trawl tow #4 (Browning Entrance)
	11:30	Midwater trawl tow #5 (Browning Entrance)
	12:55	Bongo tow #1 (Browning Entrance)
	13:50	Bongo tow #2 (Browning Entrance)
	14:45	Bongo tow #3 (N. Bonilla Island)
	22:26	Anchor Beljay Bay, Queen Charlotte Islands
19	08:57	Transects Q1-Q14 (Lyell Island inshore)
	11:40	Bongo tow #4 (Selwyn Inlet)
	13:00	Bongo tow $5 (Logan Inlet)
	15:10	Bongo tow #6 (Juan Perez Sound)
	15:35	Bongo tow #7 (Juan Perez Sound)
	16:02	Transects Q15-Q20 (Lyell Island offshore)
20	03:47	Transects J1-J10 (Juan Perez Sound-first coverage)
	08:51	Midwater trawl tow #6 (Juan Perez Sound)
	10:00	Midwater trawl tow #7 (Juan Perez Sound)
	12:43	Midwater trawl tow #8 (Juan Perez Sound)
	13:30	Midwater trawl tow #9 (Juan Perez Sound)
	16:21	Transects J11-J16 (Juan Perez Sound-second coverage)
	22:32	Midwater trawl tow #10 (Juan Perez Sound)
	22:56	Midwater trawl tow #11 (Juan Perez Sound)
21	01:05	Transects R1-R24 (Skincuttle area)
	13:00	Transect J11-J17 (Juan Perez Sound-third coverage)
	19:04	Midwater trawl tow #12 (Juan Perez Sound)
	21:30	Bongo tow #8 (Juan Perez Sound)
	21:55	Transect H1-H16 (mid-Hecate Strait)
22	06:44	Transect B1-B9 (SW Bonilla Island-second coverage)
	13:19	Midwater trawl tow #13 (SW Bonilla Island)
	14:00	Bongo tow #9 (W. Bonilla Island)
24	14:45	Secured at PBS, Nanaimo

Appendix Table 2. Condensed hydroacoustic biomass output of W.E. RICKER cruise, November 14-24, 1987. A biomass estimate in tonnes is given for each transect under the far right column headed 'BIOMASS' and a cumulative biomass for each cumulative area follows on the line below. Parameters are described as follows:

Current parameters	Description
ICO 87JEIBIO3.CON	Input control file (file name, TT: or N)
IDA 87J001.INT	Input echo integration file (file name or N)
OCB N	Output condensed biomass (file name, TT: or N)
OFB 87JEIBIO3.OFX	Output full biomass (file name, TT: or N)
FBO BOTH	For full biomass output: SEQ, CUM, BOTH
CEV 0,99999	Choose first and last event
CSP ALL	Choose species code to be analysed or NONE
DEB 0	Debugging output: 0, 1, 2
ECH Y	Echo control lines: Y or N
TLL 220.4	Transmit level (dB) re 1 uPascal at 1m
RSS -103.46	Receiver sensitivity (dB) re 1 Volt/uPascal
BFF -17.55	Beam factor (dB)
REF 30.0	Reference range for receiver TVG (m)
ALP .0099	Absorption coefficient for receiver TVG (dB/m)
SOU 1490.0	Speed of sound in water (m/sec)
TAU 0.6	Pulse length (m/sec)
GA1 0.0	Add. fixed system gain - Beam width factor (dB)
GA2 -12.0	Adj. system gain - Receiver gain (dB)
TVC 0,0	Near range and TVG correction factor (dB)
TVG 20,0.0099 20,0.0099	Time varied gain = 20 log R + 2*ALP*R
TSS/ALL -32.0	/SPE Target strength (dB/Kg)
MME 0,100	Min. & max. accepted integration value (V^2)
DEP/ALL 5,200	/SPE min. & max. depth strata (m)
UNI KM	Units for DPP and WID: km or nm
DPP 0.001	DIStance per ping (UNI/ping)
WID 1.0,0.0	Width (UNI) and slope (m/m) of transects
FRA/ALL 1	SPE/ Species fraction
AVE 5	Number of Sequences to be averaged
EVE 1 14:07:04 52 30.0 131 30.0	Event number, Time, Lat., Long.
DAT 15-NOV-87	Date DD-MMM-YY
TRA T53 1 10 1000 10.0 92.0 8.8	Transect name EIS1 EIS2-1 PIT DIS BEA TIM SPE
FIR/ALL	/SPE First sequence number to be processed
LAS/ALL	/SPE Last sequence number to be processed
LOU/ALL	/SPE zero 1. cumulative biomass output
ZER	Zero 1. and 2. cumulative biomass output
EXI	Close files, exit

```
*DAT 15-NOV-87
*IDA 87J001.INT
> Overall systems gain GAIOD dB:  53.7764
*IDA 87J002.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,200
```

BROWNING ENTRANCE TRANSECTS (First Coverage)

*EVE 12 11:11 53 52.23 130 51.13 | TOWED BODY TRANSDUCER ON

*TRA	T-name	EIS1	EIS2-1	PIT	DIS	BEA	TIM	SPE
*TRA	29	4	12	531	4.412	227.687	0.467	9.454

*ZER

*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
#	#	KM	KM^2	M	M	M	M	KM	KG/M^3	KG/M^2	T
10	590	9.1	16.8	59.2	59.2	53.7	3.9	2.8	5.32E-05	3.15E-03	5.30E+01
10	590	9.1	16.8	59.2	59.2	53.7	3.9	0.0	5.32E-05	3.15E-03	5.30E+01

*EVE 14 11:46 53 48.47 130 55.65

*TRA	T-name	EIS1	EIS2-1	PIT	DIS	BEA	TIM	SPE
*TRA	28	39	71	1895	4.810	45.359	0.517	9.310

*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
35	2013	9.5	17.5	58.9	58.9	46.7	11.1	7.2	3.61E-04	2.12E-02	3.72E+02
45	2603	18.5	34.3	59.1	59.1	47.6	10.2	0.0	2.10E-04	1.24E-02	4.25E+02

*EVE 16 12:25 53 50.93 130 48.36

*TRA	T-name	EIS1	EIS2-1	PIT	DIS	BEA	TIM	SPE
*TRA	27	80	114	2032	5.775	228.185	0.583	9.899

*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
35	2032	10.7	19.8	61.8	61.8	47.3	13.7	2.1	3.47E-04	2.14E-02	4.24E+02
80	4635	29.2	54.1	60.1	60.1	47.5	12.0	0.0	2.61E-04	1.57E-02	8.49E+02

*EVE 18 13:06 53 46.21 130 54.89

*TRA	T-name	EIS1	EIS2-1	PIT	DIS	BEA	TIM	SPE
*TRA	26	121	162	2478	6.508	47.224	0.700	9.298

*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
45	2655	12.9	23.9	59.4	59.4	56.9	6.3	7.2	4.08E-04	2.42E-02	5.80E+02
125	7290	42.2	78.1	59.9	59.9	51.3	9.6	0.0	3.06E-04	1.83E-02	1.43E+03

*EVE 20 13:56 53 49.76 130 45.51
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 25 171 215 2612 6.871 229.086 0.733 9.370
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
45	2612	12.7	23.6	70.6	70.6	67.0	18.3	4.6	1.55E-03	1.10E-01	2.59E+03
170	9902	54.9	101.6	62.4	62.4	61.4	15.2	0.0	6.34E-04	3.95E-02	4.02E+03

*EVE 22 14:45 53 44.57 130 53.66
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 24 222 269 2807 7.287 47.959 0.817 8.923
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
50	2926	14.1	26.1	67.7	67.7	59.2	8.1	10.4	4.59E-04	3.11E-02	8.10E+02
220	12828	68.9	127.7	63.5	63.5	61.0	14.0	0.0	5.96E-04	3.78E-02	4.83E+03

*EVE 26 15:39 53 48.78 130 42.96
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 23 278 328 2957 7.972 228.042 0.850 9.379
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
55	3194	15.9	29.5	64.3	64.3	50.1	8.5	8.3	4.25E-04	2.73E-02	8.06E+02
275	16022	84.9	157.2	63.6	63.6	59.5	13.2	0.0	5.63E-04	3.58E-02	5.63E+03

*EVE 28 16:36 53 42.58 130 52.34
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 22 336 390 3217 8.383 47.899 0.900 9.314
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
55	3217	15.5	28.8	69.9	69.9	32.9	4.3	4.4	2.27E-04	1.59E-02	4.57E+02
330	19239	100.4	186.0	64.6	64.6	57.5	12.6	0.0	5.07E-04	3.27E-02	6.09E+03

*EVE 30 17:36 53 47.61 130 40.75
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 21 397 452 3305 8.893 227.130 0.933 9.528
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
60	3522	17.6	32.5	67.2	67.2	19.1	16.0	11.5	2.18E-04	1.47E-02	4.77E+02
390	22761	118.0	218.5	65.0	65.0	54.7	12.8	0.0	4.63E-04	3.01E-02	6.57E+03

*EVE 32 18:39 53 40.69 130 50.69
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 20 460 519 3471 9.010 46.516 1.017 8.862
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
60	3471	16.7	30.9	71.4	71.4	25.7	7.0	3.8	1.99E-04	1.42E-02	4.38E+02
450	26232	134.7	249.4	65.8	65.8	52.9	12.4	0.0	4.27E-04	2.81E-02	7.01E+03

*IDA 87J003.INT

*EVE 37 19:47 53 46.22 130 38.30
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 19 2 63 3628 9.771 227.432 1.033 9.456
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3807	19.0	35.2	72.0	72.0	44.5	10.5	12.1	6.24E-05	4.49E-03	1.58E+02
515	30039	153.6	284.5	66.5	66.5	52.7	12.4	0.0	3.78E-04	2.52E-02	7.16E+03

*EVE 39 20:55 53 38.79 130 49.78
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 18 70 136 3913 10.536 46.820 1.117 9.436
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
70	4090	20.4	37.8	72.1	72.1	59.9	15.5	11.9	4.96E-05	3.58E-03	1.35E+02
585	34129	174.0	322.3	67.2	67.2	52.8	12.5	0.0	3.37E-04	2.26E-02	7.30E+03

*EVE 41 22:09 53 45.06 130 35.82
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 17 145 211 3956 10.816 227.191 1.133 9.544
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
70	4134	20.9	38.8	78.9	78.9	62.4	20.8	6.0	2.48E-05	1.96E-03	7.59E+01
655	38263	195.0	361.1	68.4	68.4	52.9	12.6	0.0	2.98E-04	2.04E-02	7.37E+03

*EVE 44 23:22 53 36.75 130 48.75
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 16 219 282 3746 9.849 47.926 1.067 9.234
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3805	18.5	34.3	81.0	81.0	59.5	27.0	9.2	1.23E-05	1.00E-03	3.43E+01
720	42068	213.5	395.4	69.5	69.5	53.0	12.6	0.0	2.69E-04	1.87E-02	7.41E+03

*DAT 16-NOV-87

*EVE 48 00:36 53 42.22 130 36.33
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 15 294 351 3369 9.634 227.168 0.967 9.967
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
60	3487	18.5	34.2	87.9	87.9	69.9	18.6	7.3	1.37E-05	1.21E-03	4.12E+01
780	45555	232.0	429.6	71.0	71.0	53.0	12.7	0.0	2.44E-04	1.73E-02	7.45E+03

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*EVE 50 01:43 53 35.02 130 46.95
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 14         362    407   2704   6.924  48.698   0.767   9.031
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2940  13.9  25.8  75.0  75.0  48.8  12.8   8.8 3.38E-05 2.53E-03 6.54E+01
 830 48495 245.9 455.4  71.2  71.2  53.0  12.7   0.0 2.32E-04 1.65E-02 7.52E+03

*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
              SW BONILLA ISLAND TRANSECTS (First Coverage)
-------------------------------------------------------------------------------
*EVE 52 02:38 53 38.38 130 37.77
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 13         418    524   6292  17.438 228.915   1.767   9.871
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
 110  6469  33.2  61.5  65.7  65.7  43.8  14.4  17.9 3.12E-04 2.05E-02 1.26E+03
 110  6469  33.2  61.5  65.7  65.7  43.8  14.4   0.0 3.12E-04 2.05E-02 1.26E+03

*EVE 57 04:33 53 25.70 130 59.52
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 12         534    585   3066   8.323  49.546   0.867   9.603
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  55  3243  16.3  30.2  64.0  64.0  38.0  24.8  11.4 7.70E-04 4.93E-02 1.49E+03
 165  9712  49.5  91.7  65.2  65.2  40.7  20.1   0.0 4.60E-04 3.00E-02 2.75E+03

*EVE 59 05:31 53 30.21 130 48.77
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 11         593    654   3559   9.228 227.366   1.067   8.651
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  65  3736  17.9  33.2  67.9  67.9  57.1   9.8   5.8 2.44E-05 1.66E-03 5.51E+01
 230 13448  67.4 124.9  65.9  65.9  41.0  19.9   0.0 3.41E-04 2.24E-02 2.80E+03

*EVE 61 06:39 53 22.98 131 00.16
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 10         662    721   3432   9.240  47.689   0.967   9.559
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  60  3432  17.1  31.7  76.8  76.8  42.9  30.2   7.2 9.15E-06 7.03E-04 2.23E+01
 290 16880  84.6 156.6  68.1  68.1  41.0  19.9   0.0 2.65E-04 1.80E-02 2.83E+03
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*DAT 16-NOV-87
*IDA 87J004.INT
*! EI data EIS 1-28 lost
*UNI NM
*WID 1.0
*DEP/ALL 5,200
--------------------------------------------------------------------------------
              BUTTERWORTH EDGE TRANSECTS
--------------------------------------------------------------------------------
*EVE 67 18:58 53 52.95 130 54.87
*------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 100        30     31    120   2.285  44.131   0.250   9.140
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
   5   300  10.6  19.6  32.6  32.6  29.2   3.4   5.3 1.89E-04 6.16E-03 1.21E+02
   5   300  10.6  19.6  32.6  32.6  29.2   3.4   0.0 1.89E-04 6.16E-03 1.21E+02

*EVE 68 19:13 53 54.59 130 52.17
*------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 101        32     34    180   1.598 304.717   0.200   7.989
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
   5   300   4.9   9.1  43.3  43.3  24.6  18.7   2.5 4.35E-05 1.88E-03 1.72E+01
  10   600  15.5  28.7  36.0  36.0  28.6   5.3   0.0 1.33E-04 4.80E-03 1.38E+02

*EVE 69 19:25 53 55.50 130 54.40 lest. (log omission)
*------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 102        35     70   2113   6.145 231.322   0.617   9.964
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2049  11.0  20.4  44.5  44.5  34.6   9.6   5.8 3.03E-05 1.35E-03 2.76E+01
  45  2649  26.5  49.2  39.5  39.5  29.6   6.0   0.0 8.51E-05 3.36E-03 1.65E+02

*EVE 70 20:02 53 51.66 131 02.54
*------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 103        71     82    708   1.964 321.154   0.200   9.822
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   559   2.9   5.3  22.1  22.1  20.8   1.3   1.1 1.10E-04 2.42E-03 1.29E+01
  55  3208  29.4  54.5  37.8  37.8  29.0   5.7   0.0 8.65E-05 3.27E-03 1.78E+02

*EVE 71 20:14 53 53.19 131 04.63
*------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 104        83    109   1539   3.883  49.733   0.433   8.962
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1452   6.8  12.6  39.7  39.7  32.8   2.8   2.4 1.04E-04 4.13E-03 5.19E+01
  80  4660  36.2  67.1  38.2  38.2  29.8   5.1   0.0 9.00E-05 3.43E-03 2.30E+02
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*EVE 72 20:40 53 55.70 130 59.60
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 105       110    156   2721   8.204 341.059   0.767  10.701
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2898  16.2  30.0  59.4  59.4  46.3  11.0   7.2 1.84E-05 1.09E-03 3.28E+01
 130  7558  52.4  97.0  44.7  44.7  31.9   5.8   0.0 6.06E-05 2.71E-03 2.63E+02

*EVE 73 21:26 54 03.46 131 04.13
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 106       157    168    669   1.804  51.624   0.200   9.020
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   551   2.8   5.1  62.0  62.0  48.0  14.7   1.6 1.19E-05 7.35E-04 3.75E+00
 140  8109  55.1 102.1  45.6  45.6  32.1   5.9   0.0 5.73E-05 2.61E-03 2.67E+02

*EVE 74 21:38 54 04.58 131 01.72
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 107       169    191   1357   4.001 358.741   0.383  10.437
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1433   7.8  14.5  76.3  76.3  48.1  28.3   3.7 5.42E-06 4.14E-04 6.00E+00
 165  9542  63.0 116.6  49.4  49.4  32.5   6.4   0.0 4.73E-05 2.34E-03 2.73E+02

*EVE 75 22:01 54 08.58 131 01.87
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 108       192    231   2268   6.361 353.504   0.633  10.043
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  40  2311  12.0  22.2  68.6  68.6  46.5  18.8   7.4 1.55E-05 1.06E-03 2.36E+01
 205 11853  75.0 138.8  52.5  52.5  33.6   7.4   0.0 4.07E-05 2.13E-03 2.96E+02

*EVE 76 22:39 54 14.90 131 03.10
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 109       232    262   1830   4.546  52.781   0.483   9.406
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1770   8.1  15.1  72.1  72.1  54.6  27.5   3.6 1.02E-05 7.36E-04 1.11E+01
 235 13623  83.1 153.9  54.4  54.4  34.3   8.1   0.0 3.67E-05 2.00E-03 3.07E+02

*EVE 78 23:08 54 17.65 130 56.90
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 110       263    266    237   0.787 325.694   0.067  11.803
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
   5   296   1.8   3.4  91.9  91.9  93.8  -1.9   0.9 2.35E-04 2.16E-02 7.28E+01
 240 13919  84.9 157.3  55.2  55.2  45.7   6.2   0.0 4.38E-05 2.42E-03 3.80E+02
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*EVE 80 23:42 54 15.93 131 03.50
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 112 293 306 771 2.006 330.155 0.183 10.942
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	830	4.0	7.4	29.6	29.6	25.5	7.8	1.3	5.16E-05	1.53E-03	1.13E+01
255	14749	88.9	164.7	54.1	54.1	45.1	6.2	0.0	4.40E-05	2.38E-03	3.92E+02

*EVE 81 23:53 54 17.67 131 05.21
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 113 307 328 1276 3.336 53.382 0.367 9.099
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
25	1453	7.0	13.0	60.9	60.9	40.6	10.3	5.1	6.26E-05	3.81E-03	4.97E+01
280	16202	96.0	177.7	54.6	54.6	44.6	6.7	0.0	4.55E-05	2.48E-03	4.41E+02

*DAT 17-NOV-87

*EVE 82 00:15 54 19.66 131 0.62
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 114 329 340 680 1.801 325.268 0.200 9.004
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
10	563	2.8	5.1	44.3	44.3	31.3	11.5	1.2	2.80E-05	1.24E-03	6.36E+00
290	16765	98.7	182.8	54.3	54.3	44.4	6.8	0.0	4.51E-05	2.45E-03	4.48E+02

*EVE 83 00:27 54 21.14 131 2.38
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 115 341 385 2606 6.230 232.992 0.733 8.496
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
45	2605	11.5	21.4	41.5	41.5	29.0	10.1	6.3	3.37E-05	1.40E-03	2.98E+01
335	19370	110.3	204.2	52.9	52.9	43.5	7.0	0.0	4.42E-05	2.34E-03	4.77E+02

*EVE 85 01:11 54 17.39 131 10.91
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 116 386 396 633 1.732 320.185 0.183 9.445
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
10	574	2.9	5.4	33.3	33.3	28.6	4.0	1.3	4.81E-05	1.60E-03	8.64E+00
345	19944	113.2	209.6	52.4	52.4	43.2	6.9	0.0	4.42E-05	2.32E-03	4.86E+02

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*EVE 86 01:22 54 18.72 131 12.81
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 117       397    429   1908   5.321  49.585   0.583   9.123
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2001  10.3  19.1  41.3  41.3  31.4   8.3   3.2 3.08E-05 1.27E-03 2.44E+01
 380 21945 123.5 228.7  51.5  51.5  42.6   7.0   0.0 4.33E-05 2.23E-03 5.10E+02

*DAT 17-NOV-87
*IDA 87J006.INT
*! EI data EIS 1-74 lost
*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
              BROWNING ENTRANCE TRANSECTS (Second Coverage)
-------------------------------------------------------------------------------
*EVE 97 16:42 53 50.69 130 54.40
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 29         99     99     59   1.872 223.409   0.217   8.640
*
*EVE 98 16:55 53 49.33 130 56.58 ! Entered 5 min. late
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 29S        100    100     59   1.004 146.829   0.133   7.526
*
*EVE 99  17:03 53 48.49 130 55.65
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 28         101    101     59   4.891  49.905   0.533   9.170
*
*EVE 100 17:35 53 51.64 130 49.31
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 28S        102    102     59   0.731 151.059   0.100   7.313
*
*EVE 101 17:41 53 51.00 130 48.71
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 27         103    103     59   5.495 225.954   0.617   8.910
*
*EVE 102 18:18 53 47.18 130 55.40
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 27S        104    111    476   0.811 143.299   0.117   6.949
*
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*EVE 103 18:25 53 46.53 130 54.58
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 26        112    148   2165   6.116  47.776   0.633   9.657
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  40  2343  12.3  22.7  62.9  62.9  47.7   8.8   8.5 1.43E-04 8.99E-03 2.04E+02
  40  2343  12.3  22.7  62.9  62.9  47.7   8.8   0.0 1.43E-04 8.99E-03 2.04E+02

*EVE 106 19:12 53 49.80 130 45.75 ! Fish on echogram
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 25        162    203   2384   6.649 228.570   0.733   9.067
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  45  2562  13.2  24.5  70.6  70.6  35.6  12.9  10.4 3.56E-04 2.51E-02 6.16E+02
  85  4905  25.5  47.2  66.9  66.9  38.6  11.9   0.0 2.60E-04 1.74E-02 8.20E+02

*EVE 108 20:03 53 44.52 130 53.53 ! Fish on echogram
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 24        212    258   2729   7.296  48.232   0.783   9.314
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2906  14.4  26.6  71.2  71.2  25.0   9.8   1.7 3.49E-04 2.49E-02 6.63E+02
 135  7811  39.9  73.9  68.5  68.5  32.5  10.9   0.0 2.93E-04 2.01E-02 1.48E+03

*EVE 111 20.57 53 48.83 130 43.06
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 23        261    320   3453   8.036 228.545   1.263   6.361
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  60  3453  14.9  27.6  68.4  68.4  34.7  13.2   9.4 2.07E-04 1.42E-02 3.90E+02
 195 11264  54.8 101.4  68.4  68.4  33.0  11.4   0.0 2.70E-04 1.85E-02 1.87E+03

*EVE 113 22:07 53 42.75 130 52.13
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 22        338    388   2960   8.115  47.998   0.833   9.738
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  55  3197  16.2  30.1  75.3  75.3  26.3  14.8   2.3 1.89E-04 1.43E-02 4.29E+02
 250 14461  71.0 131.5  70.0  70.0  31.7  12.0   0.0 2.50E-04 1.75E-02 2.30E+03

*EVE 115 23:05 53 47.44 130 41.16 ! Chart recorder rewind inoperative
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA 21        398    463   3579   9.321 226.973   1.017   9.168
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  70  3815  18.4  34.1  67.5  67.5  18.0   9.1  13.3 9.68E-04 6.53E-02 2.23E+03
 320 18276  89.4 165.6  69.5  69.5  25.0  10.6   0.0 3.94E-04 2.74E-02 4.53E+03
```

*DAT 18-NOV-87

*EVE 117 00:12 53 40.41 130 51.72
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 20 470 529 3483 9.667 47.987 0.983 9.831
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
60	3483	17.9	33.2	73.5	73.5	23.0	3.2	3.3	4.59E-04	3.37E-02	1.12E+03
380	21759	107.3	198.7	70.2	70.2	24.6	9.1	0.0	4.05E-04	2.84E-02	5.65E+03

*EVE 120 01:19 53 46.36 130 38.19
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 19 538 601 3732 10.176 227.461 1.050 9.692
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3793	19.2	35.5	73.4	73.4	22.5	6.0	14.8	4.48E-04	3.29E-02	1.17E+03
445	25552	126.5	234.2	70.6	70.6	24.3	8.6	0.0	4.12E-04	2.91E-02	6.81E+03

*EVE 122 02:26 53 38.73 130 49.96
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 18 606 671 3839 10.735 49.018 1.067 10.064
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
70	4076	21.1	39.1	71.6	71.6	24.4	6.6	4.1	4.04E-04	2.89E-02	1.13E+03
515	29628	147.6	273.3	70.8	70.8	24.3	8.3	0.0	4.11E-04	2.91E-02	7.94E+03

*EVE 125 03:42 53 44.30 130 37.42
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 17 683 743 3585 9.663 226.677 1.000 9.663
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3821	19.1	35.3	78.8	78.8	24.8	14.9	15.1	4.93E-04	3.89E-02	1.37E+03
580	33449	166.6	308.6	71.7	71.7	24.3	9.3	0.0	4.21E-04	3.02E-02	9.32E+03

*EVE 128 04:48 53 36.93 130 48.73
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 16 750 810 3525 9.826 49.971 1.033 9.509
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3745	19.3	35.8	81.0	81.0	32.4	12.9	2.4	4.12E-04	3.34E-02	1.19E+03
645	37194	186.0	344.4	72.7	72.7	25.3	9.7	0.0	4.20E-04	3.05E-02	1.05E+04

*EVE 133 05:56 53 42.11 130 36.54
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA 15 820 881 3674 9.302 226.271 1.050 8.859
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
65	3851	18.1	33.4	88.2	88.2	40.9	18.2	15.5	2.51E-04	2.22E-02	7.41E+02
710	41045	204.0	377.9	74.0	74.0	26.3	10.3	0.0	4.02E-04	2.98E-02	1.13E+04

```
*EVE 135 07:05 53 34.93 130 47.08
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA 14         888    937   2880   8.180   48.687    1.833    4.462
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2880  15.1  28.1  82.9  82.9  60.8  12.2   8.8 2.27E-04 1.88E-02 5.27E+02
 760 43925 219.2 405.9  74.7  74.7  27.8  10.3   0.0 3.89E-04 2.90E-02 1.18E+04

*DAT 19-NOV-87
*IDA 87J007.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
                LYELL ISLAND TRANSECTS (Inshore)
-------------------------------------------------------------------------------
*EVE 137 08:50   ! SHIP'S TRANSDUCER ON
*EVE 139 08:57 52 42.70 131 35.32 ! Exit Beljay Bay
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA Q1          7     29   1339   3.671   45.995    0.383    9.575
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1459   7.4  13.7 164.5 152.7 131.9  29.9   3.0 2.58E-04 3.94E-02 5.40E+02
  25  1459   7.4  13.7 164.5 152.7 131.9  29.9   0.0 2.58E-04 3.94E-02 5.40E+02

*EVE 142 09:20 52 45.25 131 30.96
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA Q2         30     71   2428   6.901  322.429    0.683   10.100
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  40  2308  12.1  22.5  86.6  86.0 142.4 -24.8   1.2 4.06E-04 3.49E-02 7.86E+02
  65  3767  19.6  36.2 116.1 111.3 138.1  -2.5   0.0 3.29E-04 3.66E-02 1.33E+03

*EVE 144 10:01 52 50.72 131 37.92  ! Fish schools & bottom tracking problems
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA Q3         72     83    676   1.726  283.401    0.200    8.629
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   856   4.0   7.5 115.3 113.2 104.7  25.6   2.4 2.73E-04 3.09E-02 2.31E+02
  80  4623  23.6  43.7 116.0 111.6 133.2   1.7   0.0 3.19E-04 3.56E-02 1.56E+03

*EVE 145 10:13 52 51.12 131 40.70 ! Bottom tracking difficulties
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA Q4         84     97    822   2.295  297.227    0.550    4.173
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   882   4.6   8.4 148.6 147.9 129.0  25.3   2.4 1.30E-04 1.93E-02 1.63E+02
  95  5505  28.2  52.2 121.2 117.5 132.8   3.9   0.0 2.81E-04 3.30E-02 1.72E+03
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*EVE 146 10:46 52 52.17 131 44.08
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q5          98    114    966    2.773  257.290   23.950    0.116
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   846   4.5   8.3 141.7 141.7 116.5  25.2   2.2 1.11E-04 1.58E-02 1.31E+02
 110  6351  32.7  60.5 124.1 120.8 131.6   5.4   0.0 2.53E-04 3.06E-02 1.85E+03

*EVE 147 10:43 52 51.56 131 48.56 ! Ship's sonar turned on at 10:52
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q6          115    134   1183    3.546  315.063    0.333   10.637
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1182   6.6  12.2 117.1 117.1 102.1  20.2   2.6 8.99E-05 1.05E-02 1.28E+02
 130  7533  39.2  72.6 122.9 120.2 129.7   6.4   0.0 2.27E-04 2.73E-02 1.98E+03

*EVE 154 12:23 52 50.72 131 37.87
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q7          195    212   1049    2.877  183.975    0.283   10.154
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1168   5.9  11.0  79.5  79.5  69.5  11.1   3.0 3.28E-05 2.61E-03 2.86E+01
 150  8701  45.2  83.6 117.2 114.8 128.9   6.4   0.0 2.09E-04 2.40E-02 2.01E+03

*EVE 155 12:40 52 47.85 131 38.20
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q8          213    229    935    2.278  243.120    0.267    8.543
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   816   3.7   6.8 137.8 137.7 139.3  28.7   2.7 2.19E-04 3.02E-02 2.06E+02
 165  9517  48.8  90.5 118.7 116.6 129.8   8.5   0.0 2.10E-04 2.45E-02 2.21E+03

*EVE 157 12:56 52 46.82 131 41.56
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q9          230    235    300    0.883  263.496    0.067   13.241
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   537   2.9   5.4 187.7 182.1 155.7  31.8   1.4 2.89E-04 5.26E-02 2.85E+02
 175 10054  51.8  95.9 122.6 120.3 132.8  11.2   0.0 2.17E-04 2.61E-02 2.50E+03

*EVE 160 13:24 52 46.54 131 45.63
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q10         236    249    829    2.540  206.154    0.083   30.481
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   592   3.4   6.2 154.8 154.7 134.7  30.9   1.3 2.02E-04 3.12E-02 1.94E+02
 185 10646  55.1 102.1 124.6 122.4 132.9  12.6   0.0 2.16E-04 2.64E-02 2.69E+03
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*EVE 163 13:51 52 44.26 131 47.48
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA Q11       257    277   1239   3.371 139.417   0.350   9.631
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1475   7.4  13.8  69.5  69.5  82.4  -4.6   4.0 8.21E-05 5.71E-03 7.86E+01
 210 12121  62.6 115.9 118.1 116.1 131.5  12.1   0.0 2.06E-04 2.39E-02 2.77E+03

*EVE 164 14:12 52 41.70 131 43.86
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA Q12       278    299   1281   4.111 147.319   0.367  11.211
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1163   6.9  12.8  43.2  43.2  46.3   2.5   4.3 1.03E-05 4.46E-04 5.71E+00
 230 13284  69.5 128.7 110.6 108.8 131.3  12.1   0.0 1.98E-04 2.16E-02 2.78E+03

*EVE 165 14:34 52 38.24 131 40.20
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA Q13       300    313    826   2.602 172.492   0.233  11.153
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   885   5.2   9.6  71.4  70.8  91.1   2.5   4.0 7.94E-05 5.63E-03 5.38E+01
 245 14169  74.6 138.2 107.9 106.2 130.5  11.9   0.0 1.93E-04 2.05E-02 2.83E+03

*EVE 168 15:41 52 30.89 131 26.36 ! SHIP'S TRANSDUCER OFF

*EVE 169 16:02 52 30.80 131 22.81 ! TOWED BODY TRANSDUCER ON
*UNI NM
*WID 2.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
               LYELL ISLAND TRANSECTS (Offshore)
-------------------------------------------------------------------------------
*EVE 171 16:47 52 30.67 131 11.3 ! Begin trackline  331.7' T
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA Q16       414    534   7121  18.191 330.418   2.000   9.096
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
 120  7062  33.4 123.8 104.5 104.5  73.5  27.1  16.1 1.82E-05 1.90E-03 2.35E+02
 120  7062  33.4 123.8 104.5 104.5  73.5  27.1   0.0 1.82E-05 1.90E-03 2.35E+02

*EVE 175 19:01 52 48.07 131 24.45 ! Course 149.9' T
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA Q17       549    702   9093  20.802 148.729   2.567   8.105
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
 155  9153  38.8 143.6 105.5 105.5  67.1  42.6  18.0 1.65E-05 1.74E-03 2.49E+02
 275 16215  72.2 267.4 105.0 105.0  70.2  35.1   0.0 1.73E-05 1.81E-03 4.85E+02
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*EVE 178 21:52 52 30.06 131 02.90
*------------------------------------------------------------------------------ --
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q18        721    864   8498   25.231  329.681    2.417   10.440
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
 145  8558  47.1 174.3  89.3  89.3  45.8  42.9  19.5 1.41E-05 1.26E-03 2.20E+02
 420 24773 119.2 441.7  98.8  98.8  62.6  37.5   0.0 1.61E-05 1.59E-03 7.04E+02

*DAT 20-NOV-87
*IDA 87J008.INT

*EVE 186 00:29 52 52.24 131 20.81
*------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA Q19          9    145   8046   22.090  148.725    2.267    9.746
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
 140  8224  41.8 154.9  61.1  61.1  53.0  28.9  32.3 2.24E-05 1.37E-03 2.12E+02
 560 32997 161.1 596.6  89.0  89.0  60.4  35.5   0.0 1.72E-05 1.54E-03 9.16E+02

*UNI NM
*WID 1.0
*DEP/ALL 5,120
------------------------------------------------------------------------------
                JUAN PEREZ SOUND TRANSECTS (First Coverage)
------------------------------------------------------------------------------
*EVE 191 03:47 52 31.67 131 18.11 ! Bottom tracking difficulties
*------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA J1         208    239   1851    5.229  224.965    0.533    9.805
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2022  10.6  19.6  86.7  63.8  18.7  24.3   4.4 6.12E-05 3.90E-03 7.65E+01
  35  2022  10.6  19.6  86.7  63.8  18.7  24.3   0.0 6.12E-05 3.90E-03 7.65E+01

*EVE 194 04:25 52 28.60 131 25.18 ! Herring skimmer begins again
*------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA J2         247    277   1798    4.279   34.183    0.500    8.559
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2037   9.0  16.6 172.7 100.8  21.8  62.0   1.9 1.19E-03 1.20E-01 1.99E+03
  70  4059  19.6  36.2 126.2  80.8  21.7  60.6   0.0 7.06E-04 5.70E-02 2.07E+03

*EVE 196 05:04 52 31.55 131 23.15
*------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT      DIS      BEA      TIM      SPE
*TRA J3         286    306   1189    3.129  222.149    0.333    9.388
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1425   6.9  12.9 129.7  82.9  24.8  59.1   4.6 5.31E-04 4.40E-02 5.66E+02
  95  5484  26.5  49.1 127.1  81.3  22.3  60.3   0.0 6.59E-04 5.36E-02 2.63E+03
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*EVE 198 05:29 52 29.73 131 27.36
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J4 312 331 1141 3.015 35.971 0.317 9.521
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
20	1141	5.6	10.3	153.9	108.7	53.7	75.4	2.7	3.18E-04	3.46E-02	3.58E+02
115	6625	32.1	59.4	131.7	86.1	26.1	62.1	0.0	5.84E-04	5.03E-02	2.99E+03

*EVE 200 05:55 52 32.50 131 26.31
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J5 340 356 1017 2.146 235.022 0.300 7.152
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
20	1138	4.4	8.2	153.0	101.8	41.2	66.4	3.2	1.85E-04	1.89E-02	1.55E+02
135	7763	36.5	67.7	134.3	88.0	26.8	62.3	0.0	5.28E-04	4.65E-02	3.14E+03

*EVE 202 06:16 52 31.70 131 29.35
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J6 362 373 718 1.905 33.965 0.217 8.793
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	857	4.2	7.8	159.5	104.7	68.6	80.5	2.5	9.23E-04	9.66E-02	7.53E+02
150	8620	40.7	75.5	136.9	89.7	34.9	65.8	0.0	5.76E-04	5.17E-02	3.90E+03

*EVE 204 06:36 52 33.86 131 28.96
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J7 382 393 720 2.210 221.320 0.217 10.201
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	896	5.1	9.4	158.3	97.1	45.5	47.8	3.9	4.72E-04	4.58E-02	4.32E+02
165	9516	45.8	84.9	139.3	90.5	36.0	64.0	0.0	5.63E-04	5.10E-02	4.33E+03

*EVE 207 06:55 52 33.10 131 32.00
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J8 402 415 802 2.226 37.321 0.233 9.539
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	861	4.4	8.2	132.2	110.2	85.0	55.2	1.3	3.87E-04	4.27E-02	3.50E+02
180	10377	50.3	93.1	138.7	92.3	39.6	63.4	0.0	5.45E-04	5.03E-02	4.68E+03

*EVE 209 07:14 52 35.27 131 30.42
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA J9 421 432 603 1.685 214.999 0.167 10.108
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	780	4.0	7.5	96.8	88.6	41.7	47.9	2.6	7.67E-04	6.79E-02	5.08E+02
195	11157	54.3	100.6	135.6	92.0	39.8	61.9	0.0	5.61E-04	5.16E-02	5.19E+03

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*DAT 20-NOV-87
*IDA 87J009.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,120
-------------------------------------------------------------------------------
                JUAN PEREZ SOUND TRANSECTS (Second Coverage)
-------------------------------------------------------------------------------
*EVE 219 16:42 52 33.58 131 33.12 ! Start main transects
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1     PIT      DIS      BEA      TIM      SPE
*TRA J12         29      76    2843    8.254  125.304    0.800   10.317
*ZER
*LOU/ALL
   N      P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50   2962  15.9  29.5 150.8 104.9  60.8  53.4  11.2 4.41E-03 4.62E-01 1.36E+04
  50   2962  15.9  29.5 150.8 104.9  60.8  53.4   0.0 4.41E-03 4.62E-01 1.36E+04

*EVE 221 17:35 52 29.41 131 21.68
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1     PIT      DIS      BEA      TIM      SPE
*TRA J13         83     129    2767    7.285  307.257    0.783    9.299
*LOU/ALL
   N      P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50   2947  14.4  26.6 187.2 112.9  70.1  83.2   8.0 7.78E-04 8.79E-02 2.34E+03
 100   5909  30.3  56.1 168.0 108.7  62.2  57.8   0.0 2.62E-03 2.85E-01 1.60E+04

*EVE 226 19:24 52 34.27 131 30.17
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1     PIT      DIS      BEA      TIM      SPE
*TRA J16        192     236    2694    7.673  127.774    0.800    9.591
*LOU/ALL
   N      P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  45   2694  14.2  26.3 148.5 106.2  74.1  54.6   5.8 2.92E-04 3.11E-02 8.18E+02
 145   8603  44.5  82.4 161.8 107.9  62.7  57.6   0.0 1.89E-03 2.04E-01 1.68E+04

*DAT 21-NOV-87
*IDA 87J010.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
                SKINCUTTLE AREA TRANSECTS
-------------------------------------------------------------------------------
*EVE 230 01:05 52 30.43 131 13.23
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1     PIT      DIS      BEA      TIM      SPE
*TRA R1           6      12     414    1.049   86.720    0.133    7.865
*ZER
*LOU/ALL
   N      P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10    591   2.8   5.1 104.3 104.3 103.0   2.0   0.8 1.91E-04 2.00E-02 1.03E+02
  10    591   2.8   5.1 104.3 104.3 103.0   2.0   0.0 1.91E-04 2.00E-02 1.03E+02
```

*EVE 231 01:13 52 30.49 131 11.51
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA RR1 13 30 1028 2.656 92.158 0.283 9.373

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
15	851	4.1	7.5	85.2	85.2	69.6	16.0	1.9	1.33E-05	1.14E-03	8.58E+00
25	1442	6.8	12.7	92.9	92.9	100.4	3.1	0.0	9.43E-05	8.76E-03	1.11E+02

*EVE 232 01:30 52 30.39 131 07.15
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA R2 31 59 1654 4.756 153.610 0.483 9.839
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
30	1713	9.1	16.9	64.4	64.4	36.5	32.2	4.6	1.04E-05	6.70E-04	1.13E+01
55	3155	16.0	29.6	76.7	76.7	94.5	5.8	0.0	5.40E-05	4.14E-03	1.22E+02

*EVE 233 01:59 52 26.13 131 03.68
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA R3 60 88 1657 3.410 189.786 0.467 7.306
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
30	1716	6.5	12.1	64.3	64.3	36.9	19.1	1.9	3.15E-05	2.03E-03	2.46E+01
85	4871	22.5	41.7	73.1	73.1	84.9	8.0	0.0	4.82E-05	3.53E-03	1.47E+02

*EVE 234 02:27 52 22.77 131 04.63
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA R4 89 97 484 1.160 234.123 0.117 9.946
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
10	543	2.4	4.5	84.1	84.1	89.3	-3.5	0.8	2.02E-04	1.70E-02	7.59E+01
95	5414	24.9	46.1	74.1	74.1	86.4	4.1	0.0	6.51E-05	4.83E-03	2.23E+02

*EVE 235 02:34 52 22.09 131 06.17
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA R5 98 117 1124 2.971 169.336 0.333 8.914
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
20	1124	5.5	10.2	82.8	82.8	69.1	13.4	2.7	4.78E-06	3.96E-04	4.03E+00
115	6538	30.4	56.3	75.7	75.7	86.1	4.3	0.0	5.32E-05	4.03E-03	2.27E+02

*EVE 236 02:54 52 19.17 131 05.27
*----------
*TRA T-name EIS1 EIS2-1 PIT DIS BEA TIM SPE
*TRA R6 118 128 631 1.826 120.621 0.167 10.955
*LOU/ALL

N	P	LEN	AREA	DEP	COL	DCS	DCB	LCB	VOL/D	SURF/D	BIOMASS
10	572	3.1	5.7	64.6	64.6	50.4	14.9	1.4	5.43E-06	3.51E-04	1.99E+00
125	7110	33.5	62.0	74.7	74.7	85.8	4.3	0.0	4.94E-05	3.69E-03	2.29E+02

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*EVE 237 03:04 52 18.24 131 02.70 ! No fish on echogram
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R7         129    169   2404   6.747 145.202    0.683    9.873
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  40  2346  12.2  22.6 106.9 106.9  77.7  13.6   4.0 4.28E-04 4.58E-02 1.03E+03
 165  9456  45.7  84.6  83.3  83.3  79.1  12.0   0.0 1.79E-04 1.49E-02 1.26E+03

*EVE 238 03:45 52 12.70 130 56.41
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R8         170    190   1240   3.046 183.693    0.350    8.704
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1180   5.4   9.9  86.9  86.9  90.3  -0.6   3.5 5.17E-05 4.49E-03 4.47E+01
 185 10636  51.0  94.5  83.7  83.7  79.5  11.5   0.0 1.65E-04 1.38E-02 1.31E+03

*EVE 239 04:06 52 09.66 130 56.73
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R9         191    204    790   2.149 272.134    0.217    9.916
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   850   4.3   7.9  73.1  73.1  79.1  -2.1   1.3 1.02E-03 7.46E-02 5.92E+02
 200 11486  55.3 102.5  82.8  82.8  79.4   7.3   0.0 2.24E-04 1.85E-02 1.90E+03

*EVE 240 04:19 52 09.74 131 00.23
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R10        205    210    355   0.889 187.938    0.117    7.616
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
   5   295   1.4   2.5  96.1  96.1  95.4   0.8   0.7 6.64E-04 6.39E-02 1.62E+02
 205 11781  56.7 105.0  83.2  83.2  80.6   6.8   0.0 2.36E-04 1.96E-02 2.06E+03

*EVE 241 04:26 52 08.86 131 00.43
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R11        211    233   1267   3.117  90.368    0.333    9.352
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1387   6.3  11.7  98.7  98.7 130.5 -15.3   4.0 2.25E-04 2.22E-02 2.60E+02
 230 13168  63.0 116.7  84.7  84.7  86.2   4.3   0.0 2.35E-04 1.99E-02 2.32E+03

*EVE 242 04:46 52 08.84 130 55.35  ! Bottom tracking difficulties
*-------------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA R12        234    254   1245   3.475   3.035    0.367    9.477
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1184   6.1  11.3 162.7 162.2 180.5 -11.9   3.0 2.70E-05 4.38E-03 4.97E+01
 250 14352  69.1 128.0  91.6  91.6  88.2   3.9   0.0 2.02E-04 1.85E-02 2.37E+03
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*EVE 243 05:08 52 12.31 130 55.05  ! Bottom tracking difficulties
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R13       255    335   4765  12.051 329.938   1.350   8.927
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  80  4706  22.0  40.8 127.1 126.8 141.1   0.6   9.2 1.00E-03 1.27E-01 5.19E+03
 330 19058  91.2 168.9 100.2 100.1 124.5   1.6   0.0 4.47E-04 4.48E-02 7.56E+03

*EVE 246 06:29 52 22.74 131 04.92  ! Bottom tracking difficulties
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R14       336    359   1392   3.547 269.354   0.400   8.867
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1452   6.9  12.7  61.6  61.6  21.4  56.5   1.1 5.80E-04 3.58E-02 4.54E+02
 355 20510  98.0 181.6  97.5  97.4 118.7   4.7   0.0 4.53E-04 4.42E-02 8.02E+03

*EVE 247 06:53 52 22.70 131 10.73
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R15       360    369    538   1.440 229.761   0.150   9.598
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   537   2.7   4.9  52.5  52.5  46.6  12.3   2.0 7.04E-04 3.70E-02 1.82E+02
 365 21047 100.7 186.5  96.3  96.2 117.1   4.9   0.0 4.57E-04 4.40E-02 8.20E+03

*EVE 248 07:02 52 21.77 131 12.53
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R16       370    376    416   0.988 317.645   0.117   8.467
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   593   2.6   4.8  80.9  80.9  80.7  25.4   0.7 9.56E-04 7.73E-02 3.74E+02
 375 21640 103.3 191.3  95.9  95.8 115.5   5.8   0.0 4.68E-04 4.48E-02 8.57E+03

*EVE 249 07:09 52 22.50 131 13.62
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R17       377    386    590   1.559  40.821   0.167   9.356
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  10   590   2.9   5.3  59.9  59.9  39.7  15.0   0.8 2.62E-03 1.57E-01 8.40E+02
 385 22230 106.2 196.7  94.9  94.9 108.7   6.6   0.0 5.05E-04 4.79E-02 9.41E+03

*EVE 250 07:19 52 23.68 131 11.95
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R18       387    419   1935   4.889  88.476   0.533   9.168
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  29  1522   8.3  15.3  60.2  60.2  68.3  -1.5   3.7 2.74E-04 1.65E-02 2.53E+02
 414 23752 114.5 212.0  92.4  92.4 107.7   6.4   0.0 4.94E-04 4.56E-02 9.67E+03
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*DAT 21-NOV-87
*IDA 87J011.INT
*UNI NM

*EVE 252 08:33 52 20.85 131 10.50 ! SHIP'S TRANSDUCER ON
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R19         2     28   1574   2.777 236.066   0.433   6.407
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1751   5.7  10.6  82.7  82.7  74.1  24.6   3.2 6.03E-04 4.99E-02 5.29E+02
 444 25503 120.2 222.6  92.0  91.9 105.9   7.4   0.0 4.98E-04 4.58E-02 1.02E+04

*EVE 253 08:59 52 19.30 131 14.27
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R20         29     43    832   1.596 253.998   0.233   6.841
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   832   3.0   5.5  42.6  42.6  37.4  10.1   1.1 3.26E-04 1.39E-02 7.61E+01
 459 26335 123.1 228.1  90.8  90.7 105.4   7.4   0.0 4.97E-04 4.50E-02 1.03E+04

*EVE 254 09:13 52 18.86 131 16.78
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R21         44     73   1726   0.889 259.629   0.500   1.777
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1726   1.6   3.0  38.5  38.5  39.6   7.8   0.4 1.85E-04 7.12E-03 2.17E+01
 489 28061 124.8 231.1  90.1  90.0 105.3   7.4   0.0 4.95E-04 4.45E-02 1.03E+04

*EVE 255 09:43 52 18.70 131 18.21 ! Turn 180 in Skincuttle Inlet
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R22         74    101   1624   0.822  81.605   0.433   1.897
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1447   1.4   2.5  40.3  40.3  39.6   1.2   0.6 2.15E-05 8.65E-04 2.17E+00
 514 29508 126.2 233.6  89.6  89.5 105.3   7.4   0.0 4.92E-04 4.41E-02 1.03E+04

*EVE 257 10:09 52 18.82 131 16.88
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R23        102    116    879   2.333  71.509   0.267   8.749
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  15   879   4.3   8.0  56.8  56.8  46.3  13.0   2.2 2.00E-05 1.13E-03 9.07E+00
 529 30387 130.5 241.6  88.5  88.4 105.2   7.4   0.0 4.82E-04 4.26E-02 1.03E+04
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*EVE 259 10:25 52 19.56 131 13.26
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA R24       117    134   1012   1.831  52.282   0.300   6.102
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  20  1130   3.8   7.0  76.9  76.9  75.0   2.2   2.1 5.07E-05 3.90E-03 2.74E+01
 549 31517 134.3 248.6  88.2  88.1 105.1   7.4   0.0 4.72E-04 4.16E-02 1.03E+04

*EVE 260 10:43 52 20.68 131 10.89 ! SHIP'S TRANSDUCER OFF

*EVE 261 12:43 52 27.48 131 10.42 ! TOWED BODY TRANSDUCER ON
*IDA 87J012.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
                JUAN PEREZ TRANSECTS (Third Coverage)
-------------------------------------------------------------------------------
*EVE 263 13:29 52 29.63 131 19.90
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA J16        31     78   2859   7.938 306.574   0.817   9.720
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2978  15.3  28.4 149.8 142.9 127.5  35.4   7.6 2.82E-04 4.03E-02 1.14E+03
  50  2978  15.3  28.4 149.8 142.9 127.5  35.4   0.0 2.82E-04 4.03E-02 1.14E+03

*EVE 265 14:24 52 33.56 131 31.20
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA J13        86    133   2811   7.453 128.995   0.783   9.515
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  50  2930  14.4  26.6 164.3 153.8 119.6  38.0   8.5 1.15E-04 1.76E-02 4.70E+02
 100  5908  29.7  55.0 156.8 148.2 125.2  36.1   0.0 1.98E-04 2.93E-02 1.61E+03

*EVE 267 15:15 52 28.63 131 22.30
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA J12       137    189   3036   8.273 305.634   0.850   9.733
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  55  3156  15.9  29.5 155.5 148.6  71.3  45.0   5.6 6.86E-04 1.02E-01 3.01E+03
 155  9064  45.6  84.5 156.4 148.3  90.1  41.9   0.0 3.69E-04 5.47E-02 4.62E+03
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*IDA 87J013.INT
*UNI NM
*WID 1.0
*DEP/ALL 5,200
-------------------------------------------------------------------------------
                MID-HECATE STRAIT TRANSECTS
-------------------------------------------------------------------------------
*EVE 274 21:55 52 33.83 131 10.60
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA H1           6     63   3366   8.960   56.693    0.967    9.269
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  60  3484  17.2  31.8  76.1  76.1  41.9  28.3   9.9 2.06E-05 1.57E-03 5.00E+01
  60  3484  17.2  31.8  76.1  76.1  41.9  28.3   0.0 2.06E-05 1.57E-03 5.00E+01

*EVE 275 22:53 52 38.75 130 58.27
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA H2           64     96   1925   4.851   82.062    0.550    8.820
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2043   9.5  17.7  60.2  60.2  39.1  22.9   5.5 6.32E-06 3.81E-04 6.72E+00
  95  5527  26.7  49.5  70.5  70.5  41.6  27.7   0.0 1.63E-05 1.15E-03 5.67E+01

*EVE 276 23:26 52 39.42 130 50.35
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA H3           97    130   1932   5.200    0.200    0.483   10.759
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1696   8.5  15.7  61.0  61.0  37.6  20.1   5.6 7.08E-06 4.32E-04 6.76E+00
 125  7223  35.2  65.1  68.2  68.2  41.1  26.9   0.0 1.43E-05 9.75E-04 6.35E+01

*EVE 277 23:55 52 44.62 130 50.32
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA H4          131    162   1874   4.826   84.888    0.533    9.048
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2051   9.8  18.1  66.0  66.0  38.4  29.7   5.7 2.32E-06 1.53E-04 2.77E+00
 160  9274  44.9  83.2  67.7  67.7  41.0  27.0   0.0 1.18E-05 7.96E-04 6.62E+01

*DAT 22-NOV-87

*EVE 278 00:27 52 45.05 130 42.38
*-----------------------------------------------------------------------------
*TRA T-name    EIS1 EIS2-1    PIT     DIS      BEA      TIM      SPE
*TRA H5          163    189   1569   4.593  355.771    0.433   10.598
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  25  1451   7.9  14.6  62.0  62.0  31.1  26.3   5.3 4.86E-06 3.01E-04 4.39E+00
 185 10725  52.8  97.8  66.8  66.8  40.4  27.0   0.0 1.08E-05 7.22E-04 7.06E+01
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*EVE 279 00:53 52 49.63 130 42.94
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H6        190    222   1891   5.176  65.698   0.550   9.410
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2009  10.2  18.9  67.6  67.6  26.6  44.7   6.5 1.80E-06 1.22E-04 2.30E+00
 220 12734  63.0 116.7  67.0  67.0  40.0  27.5   0.0 9.33E-06 6.25E-04 7.29E+01

*EVE 280 01:26 52 51.76 130 35.13
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H7        223    251   1702   4.676 326.302   0.467  10.019
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1761   9.0  16.6  52.7  52.7  31.6  16.2   5.6 3.45E-06 1.82E-04 3.02E+00
 250 14495  72.0 133.3  65.2  65.2  39.6  27.1   0.0 8.74E-06 5.70E-04 7.60E+01

*EVE 281 01:54 52 55.65 130 39.43
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H8        252    281   1739   5.078 338.355   0.500  10.156
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1739   9.4  17.4  73.2  73.2  37.4  38.1   4.3 3.00E-05 2.19E-03 3.82E+01
 280 16234  81.4 150.7  66.1  66.1  38.9  30.8   0.0 1.15E-05 7.58E-04 1.14E+02

*EVE 283 02:24 53 00.37 130 42.54
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H9        282    313   1885   4.968 282.909   0.533   9.316
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1767   8.6  16.0  60.9  60.9  61.6   3.2   3.8 2.19E-05 1.34E-03 2.13E+01
 310 18001  90.0 166.7  65.6  65.6  42.5  26.4   0.0 1.24E-05 8.13E-04 1.36E+02

*EVE 284 02:56 53 01.48 130 50.59
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H10       314    346   1906   5.210   6.157   0.533   9.769
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2024  10.2  19.0  75.3  75.3  66.7   8.6   5.5 2.08E-05 1.57E-03 2.97E+01
 345 20025 100.2 185.6  66.6  66.6  46.8  23.2   0.0 1.34E-05 8.90E-04 1.65E+02

*EVE 285 03:28 53 06.66 130 49.66 ! Scattering layer near bottom
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H11       347    378   1855   5.031 297.462   0.517   9.737
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1737   8.7  16.2  60.9  60.9  59.2   5.4   3.4 1.21E-04 7.38E-03 1.19E+02
 375 21762 109.0 201.8  66.1  66.1  52.0  15.8   0.0 2.13E-05 1.41E-03 2.84E+02
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*EVE 286 03:59 53 08.98 130 57.10
*-------------------------------------------------------------------------------- --
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H12       379    411   1920   4.846  30.628   0.550   8.811
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2038   9.5  17.6  69.5  69.5  67.6   5.6   6.0 1.23E-04 8.52E-03 1.50E+02
 410 23800 118.5 219.4  66.4  66.4  57.4  12.3   0.0 2.98E-05 1.98E-03 4.35E+02

*EVE 287 04:32 53 13.15 130 52.98
*--------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H13       412    447   2112   5.268 312.221   0.567   9.296
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2054   9.5  17.6  60.4  60.4  62.8   2.7   2.9 9.52E-05 5.75E-03 1.01E+02
 445 25854 128.0 237.0  66.0  66.0  58.4  10.5   0.0 3.43E-05 2.26E-03 5.36E+02

*EVE 288 05:06 53 16.69 130 59.50 ! Bottom Scattering layer thinned out
*--------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H14       448    481   2001   4.985  36.643   0.583   8.546
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2063   9.5  17.6  71.1  71.1  57.0   4.5   2.8 3.33E-05 2.37E-03 4.17E+01
 480 27917 137.5 254.6  66.3  66.3  58.3  10.0   0.0 3.42E-05 2.27E-03 5.77E+02

*EVE 289 05:41 53 20.69 130 54.52
*--------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H15       482    511   1746   4.770 313.604   0.517   9.233
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1742   8.8  16.3  66.8  66.8  52.2   9.3   5.6 2.84E-05 1.89E-03 3.09E+01
 510 29659 146.3 271.0  66.4  66.4  58.0  10.0   0.0 3.38E-05 2.25E-03 6.08E+02

*EVE 291 06:12 53 23.98 131 00.31
*--------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA H16       512    544   1904   4.589  71.712   0.533   8.604
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1727   7.7  14.3  78.6  78.6  56.8  20.7   3.8 1.01E-05 7.90E-04 1.13E+01
 540 31386 154.0 285.2  67.0  67.0  58.0  10.2   0.0 3.24E-05 2.17E-03 6.20E+02

*UNI NM
*WID 1.2
*DEP/ALL 5,200
--------------------------------------------------------------------------------
                SW BONILLA ISLAND TRANSECTS
--------------------------------------------------------------------------------
*EVE 292 06:44 53 25.42 130 53.00
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*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B1        545    575   1822   4.836 301.268   0.500   9.672
*ZER
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1763   8.7  19.3  63.0  63.0  52.0   9.3   5.1 3.90E-05 2.46E-03 4.73E+01
  30  1763   8.7  19.3  63.0  63.0  52.0   9.3   0.0 3.90E-05 2.46E-03 4.73E+01

*EVE 294 07:21 53 29.04 130 58.63
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B2        584    624   2407   5.500 121.577   0.700   7.857
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  45  2643  11.2  24.9  71.2  71.2  50.7  11.6   3.6 3.78E-05 2.69E-03 6.69E+01
  75  4406  19.9  44.1  67.6  67.6  51.3  10.6   0.0 3.83E-05 2.59E-03 1.14E+02

*EVE 296 08:11 53 27.20 130 50.12 ! Fish schools
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B3        634    666   1909   5.371 301.922   0.550   9.766
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2027  10.6  23.5  60.7  60.7  56.1   7.4   5.1 8.26E-05 5.01E-03 1.18E+02
 110  6433  30.4  67.6  65.2  65.2  53.7   9.0   0.0 5.26E-05 3.43E-03 2.32E+02

*EVE 298 08:52 53 30.97 130 56.71 ! Fish schools, 60-70 m bottom
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B4        676    719   2552   5.415 120.278   0.733   7.384
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  45  2611  10.3  22.8  59.8  59.8  46.1   5.9   3.4 9.59E-05 5.74E-03 1.31E+02
 155  9044  40.7  90.4  63.9  63.9  51.0   7.9   0.0 6.28E-05 4.01E-03 3.63E+02

*EVE 300 09:44 53 29.35 130 48.25 ! Fish schools, 70-80 m bottom
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B5        729    758   1769   4.978 303.392   0.500   9.957
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1769   9.2  20.5  55.6  55.6  61.7   3.7   2.1 2.49E-04 1.39E-02 2.84E+02
 185 10813  49.9 110.9  62.3  62.3  55.7   6.0   0.0 9.36E-05 5.83E-03 6.47E+02

*EVE 302 10:22 53 32.73 130 53.52
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B6        767    807   2363   4.737 118.086   0.667   7.105
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  45  2586   9.6  21.3  66.5  66.5  58.4  13.0   6.5 1.21E-03 8.04E-02 1.72E+03
 230 13399  59.5 132.2  63.0  63.0  57.6  11.1   0.0 2.84E-04 1.79E-02 2.36E+03
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*EVE 305 11:08 53 31.30 130 45.79
*-------------------------------------------------------------------------- --
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B7        814    841   1594   4.393 301.109   0.433  10.139
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  30  1712   8.7  19.4  57.9  57.9  64.7   6.3   2.2 7.17E-05 4.15E-03 8.06E+01
 260 15111  68.2 151.6  62.4  62.4  57.9  10.9   0.0 2.58E-04 1.61E-02 2.44E+03

*EVE 307 11:44 53 34.40 130 50.39
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B8        852    883   1885   4.001 122.505   0.517   7.744
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
  35  2062   8.1  18.0  85.5  85.5  65.0   7.1   3.5 1.82E-04 1.55E-02 2.80E+02
 295 17173  76.3 169.7  64.8  64.8  58.6  10.5   0.0 2.48E-04 1.61E-02 2.72E+03

*EVE 309 12:24 53 33.34 130 43.72
*-------------------------------------------------------------------------------
*TRA T-name   EIS1 EIS2-1    PIT     DIS     BEA     TIM     SPE
*TRA B9        892    896    300   1.645 302.341   0.133  12.337
*LOU/ALL
   N     P   LEN  AREA   DEP   COL   DCS   DCB   LCB    VOL/D   SURF/D  BIOMASS
   5   300   3.0   6.8 129.4 129.4 101.1  28.4   1.5 1.14E-04 1.48E-02 1.00E+02
 300 17473  79.4 176.4  67.3  67.3  60.1  11.2   0.0 2.38E-04 1.60E-02 2.82E+03

*EXI
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